News about

B. F. Goodrich Chemical *raw materials*

Now's the time to begin thinking about scorch problems

the answer is Good-rite VULTROL!

BE ready for hot weather *before* it hits! Be ready with Good-rite Vultrol to protect your tire tread processing against scorching. For this *proved* rubber chemical is *doubly* valuable during hot weather months when scorch problems are at their worst.

Good-rite Vultrol has *extra* advantages. It retards scorch without loss in quality at optimum cure. Many anti-scorch agents retard cure at all temperatures. But Vultrol retards cure at processing temperatures only, and actually activates slightly at curing temperatures. And Vultrol is especially valuable as a means of recovering partially-scorched stocks.

Vultrol is used successfully with natural rubber, GR-S and nitrile rubbers. High abrasion furnace black tread stocks can be safely processed with it the year 'round. It is economical and easy to use. Send for complete information about the properties of this stock-saving, money-saving rubber chemical. Please address Dept. CA-3, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, O. In Canada: Kitchener, Ont. Cable address: Goodchemco.

Good-rite
Rubber Chemicals
B. F. Goodrich Chemical Company
A DIVISION OF
The B. F. Goodrich Company

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plasticizers • HARMON organic colors

With this high-abrasion black Tires suffer less from cut and crack!

● The Sir Walter Raleigh of carbon blacks, if you please! Philblack* O guards tire treads from the growth of cuts and cracks. Acts as a shield and buffer against abrasion, too!

Improved suppleness and pliancy . . . remarkably long flex life . . . good aging qualities . . . excellent stress-strain properties. All these add up to rubber compounds of phenomenal toughness and endurance. Use Philblack O in tire treads, transmission and conveyor belts and other mechanical goods where strength and stamina are needed.

Philblack technical experts will be glad to consult with you on the proper ratio of Philblack O for best results . . . in natural, GR-S, reclaim and low temperature polymers.

PHILLIPS CHEMICAL COMPANY

PHILBLACK SALES DIVISION

EVANS BUILDING · AKRON 8, OHIO

PHILBLACK EXPORT SALES DIVISION • 80 BROADWAY • NEW YORK 5, N. Y.

* A Trademark

Philblack A and Philblack O are manufactured at Borger, Texas. Warehouses in Akron, Boston, Chicago and Trenton.
West Coast agent: Harwick Standard Chemical Company, Los Angeles. Canadian agent: H. L. Blachford, Ltd., Montreal and Toronto.

White sidewalls are back—

AND THEY STAY WHITE

with *Wing-Stay S*

Wing-Stay, Chemigum, Pliobond, Pliolite, Pliovic—
T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

WHITE sidewall tires—and ANYTHING made of white or light-colored rubber *stay* light when you incorporate WING-STAY S in your compound stock. And WING-STAY S offers the best available combination of antioxidant protection, nondiscoloring and non-staining properties and low cost—full protection combined with minimum discoloration.

You can secure this outstanding protection at low cost by incorporating WING-STAY S in your compound stock, or by using either GR-S 26 or X-625 —both of which have WING-STAY S incorporated at the source.

Proof of the outstanding results you will gain with WING-STAY S in white and light-colored stocks is found in this fact: since August, 1951, more non-staining GR-S has been made with WING-STAY S than with all other anti-oxidants combined.

Write today for full details to:

GOODYEAR, CHEMICAL DIVISION
AKRON 16, OHIO

GOODYEAR

Use Proved Products — CHEMIGUM • PLIOBOND • PLIOLITE • PLIOVIC • WING-CHEMICALS — The Finest Chemicals for Industry

...to be glamorized by TITANOX

Raw rubber gives little indication of having a glamorous future when you see it dockside.

Soon these bales will be transformed into gay, colorful swim suits, shower curtains, beach balls, floor tile, toys, and endless other products with the help of Titanox pigments. No other pigment can give such light or bright tints, or whites so white, in natural or synthetic rubber, as TiO_2.

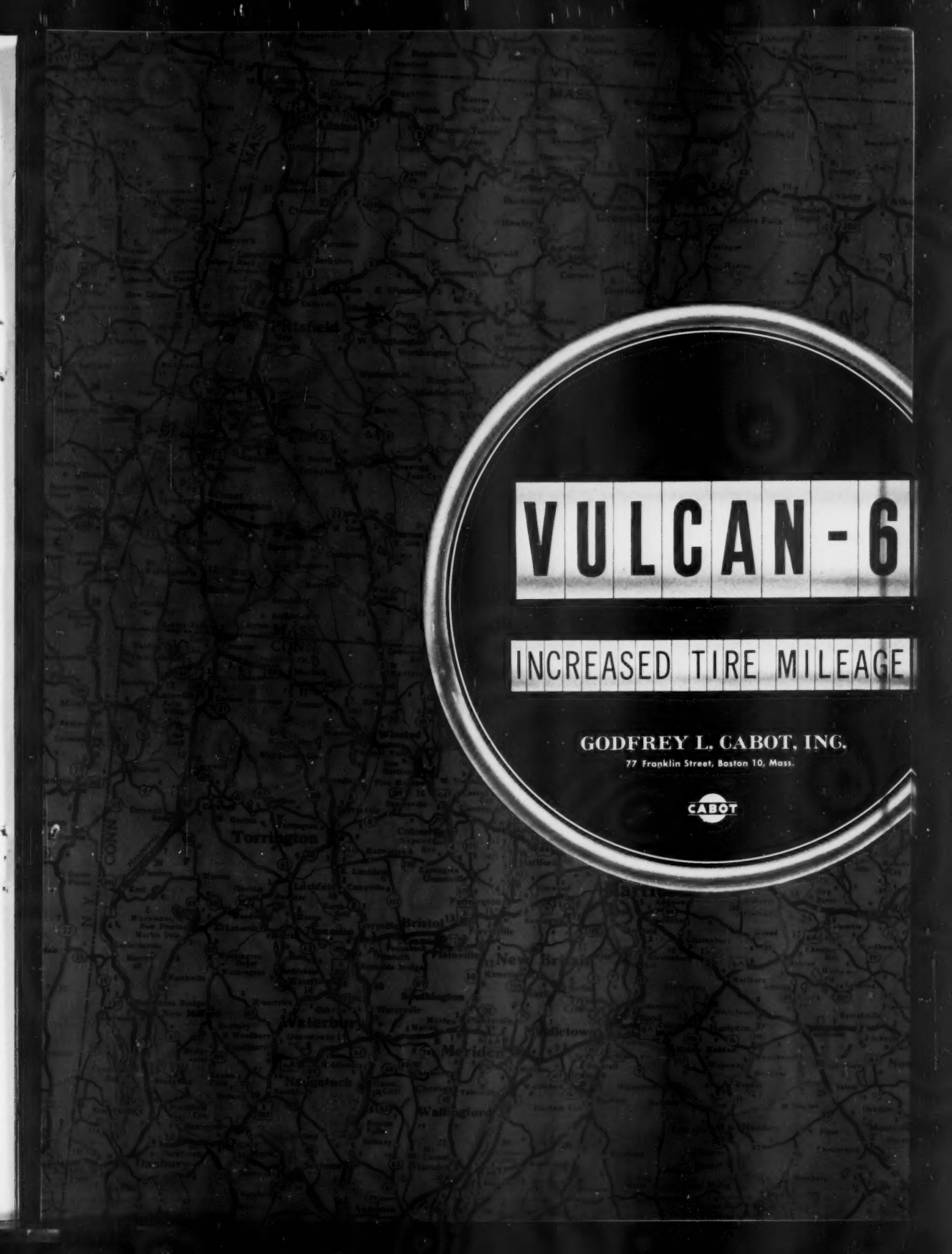
There is a rutile or anatase Titanox pigment for any type of rubber compound. Just bring your problems to our Technical Service Department. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.: Boston 6; Chicago 3; Cleveland 15; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 9, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.

® TITANOX

the brightest name in pigments

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY


VULCAN-6
INCREASED TIRE MILEAGE
GODFREY L. CABOT, INC.
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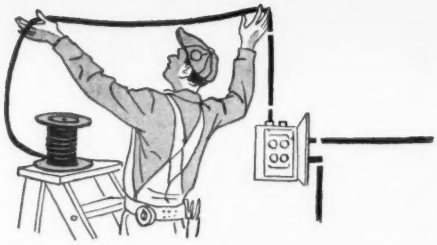
CABOT



You get all 3 with "Dutch Boy" TRIBASE E (vinyl insulation stabilizer)

1. Good Electrical Properties. Tribase E provides all of the electrical advantages characteristic of lead silicates, without sacrificing great heat stability.

2. Exceptional Heat Stability. Tribase E's safe, high, available basic lead content guarantees good, long time heat stability. It also eliminates gassing and other types of stabilizer breakdown.

3. Low Volume Cost. Tribase E has a low specific gravity... making it the most economical "White Litharge" type compound available.

If you have a vinyl electrical insulation problem, consult our technical staff. And if you'd like more information and technical data about Tribase E, a request will be welcome.

"Dutch Boy" Stabilizers

PRODUCT	USE
TRIBASE (Tribasic Lead Sulphate)	Electrical and other compounds requiring high heat stability
TRIBASE E (Basic Lead Silicate Sulphate Complex)	Low volume cost insulation
DS-207 (Dibasic Lead Stearate)	Stabilizer-lubricant for sheeting, film, extrusion and molded compounds
PLUMB-O-SIL A (Co-precipitate of Lead Orthosilicate and Silica Gel)	Translucent and colored sheeting and upholstery stocks
PLUMB-O-SIL B (Co-precipitate of Lead Orthosilicate and Silica Gel)	Translucent and colored film, sheeting, belting
PLUMB-O-SIL C (Co-precipitate of Lead Orthosilicate and Silica Gel)	Highly translucent film and sheeting
DYTHAL (Di-basic Lead Phthalate)	General purpose stabilizer for heat and light. Good electrical properties
DYPHOS (Di-basic Lead Phosphite)	Outstanding for heat and light in all opaque stocks, including plastisols and organosols. Exceptional weathering characteristics
NORMASAL (Normal Lead Salicylate)	As stabilizer or co-stabilizer in vinyl flooring and other compounds requiring good light stability
BARINAC (Barium Ricinoleate)	Stabilizer-lubricant for clears

Dutch Boy* CHEMICALS

*Reg. U. S. Pat. Off.

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111 Broadway, New York 6, N. Y.

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and depend on these trained men

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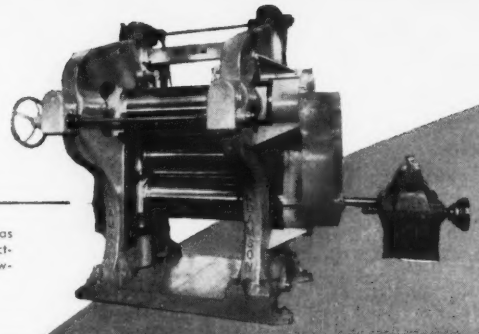
GOODYEAR



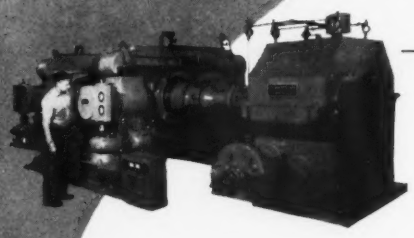
16" x 36" FOUR-ROLL CALENDER

For rubber and sponge products. Has sleeve bearings, herringbone connecting gears, manually operated screw-downs, and grease lubrication.

20" x 54" THREE-ROLL CALENDER

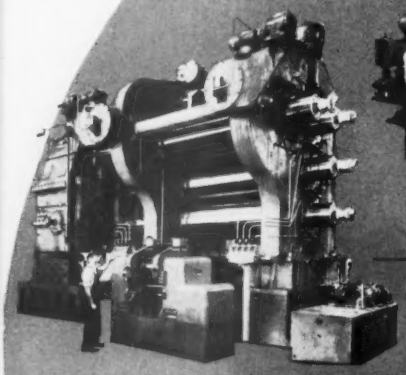
For medium speed production of various types of rubber products. Equipped with herringbone even speed and friction gearing, sleeve bearings, grease lubrication, and motorized roll adjustments. Drive can be adapted to suit available space.

ADAMSON UNITED CALENDERS



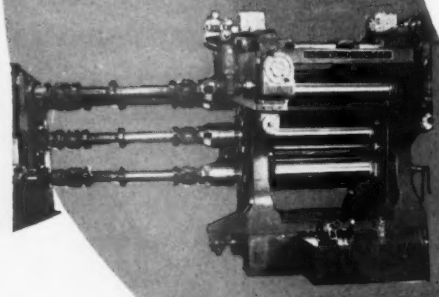
30" x 54" TWO-ROLL HORIZONTAL CALENDER

For finishing asphalt floor tile. This machine is equipped with roller bearings, drilled rolls, pinion stand drive with universal couplings, motorized roll adjustments, and adjustable speed control for tandem operation.



36" x 92" FOUR-ROLL PRECISION CALENDER

Designed especially for the production of thin plastics film up to 72" wide. This unit also is equipped with roller bearings; has roll crossing and zero clearance equipment, motorized roll adjustments, separate pinion stand with universal couplings and flood lubrication.

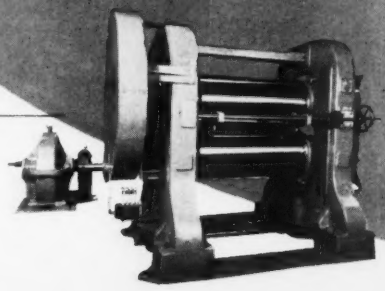


24" x 68" FOUR-ROLL DELUXE PLASTICS CALENDER

Produces 57" wide film at high speeds. Has roller bearings, zero clearance equipment, roll crossing device, roller bearing universal couplings, drilled rolls, motorized stock guides and flood lubrication. Drive is through a separate pinion stand which has its own complete flood lubrication system.

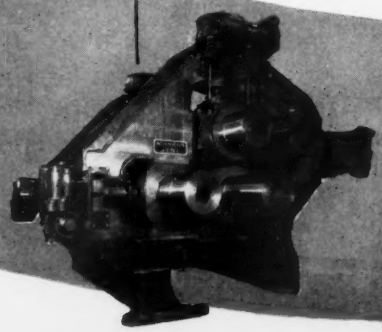
24" x 68" FOUR-ROLL Z-TYPE RUBBER CALENDER

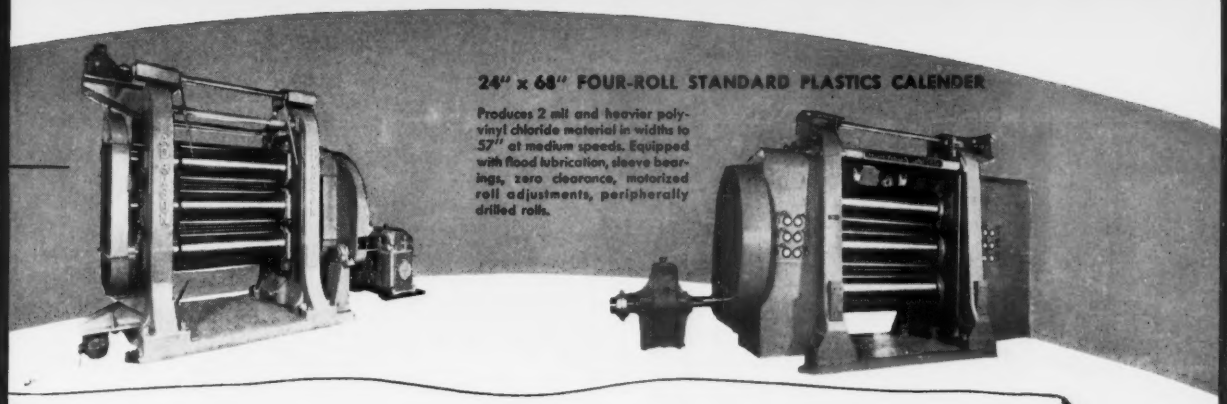
For high speed double-coating of tire fabric. Has sleeve bearings with grease or flood lubrication, motorized roll adjustments, herringbone connecting and drive gears, plus other features required for high speed production.



24" x 52" TWO-ROLL CALENDER

Another Adamson calender, vertical type, used in the production of floor tiling.





24" x 68" FOUR-ROLL STANDARD PLASTICS CALENDER

Produces 2 mil and heavier polyvinyl chloride material in widths to 57" at medium speeds. Equipped with flood lubrication, sleeve bearings, zero clearance, motorized roll adjustments, peripherally drilled rolls.

- - for RUBBER and PLASTICS

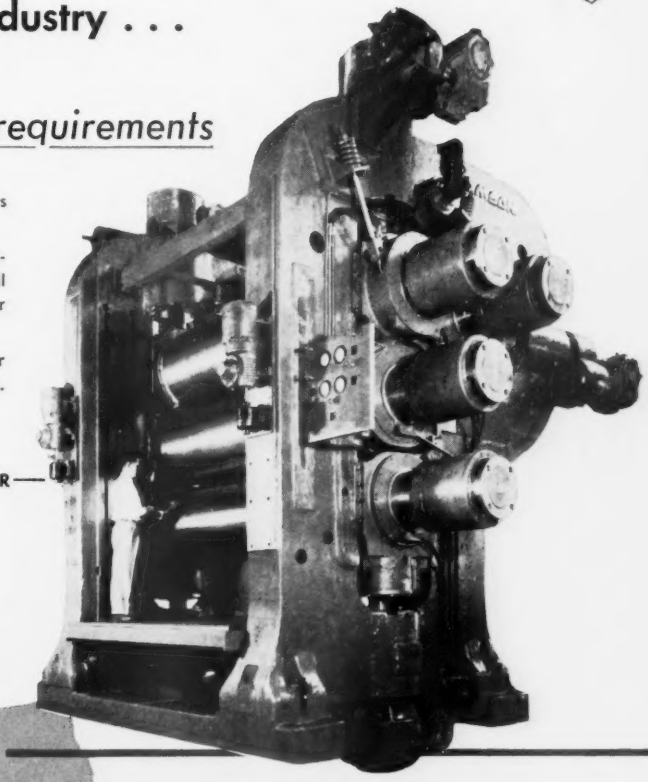
designed for the industry . . .

Engineered to your special requirements

Shown are some of the many types of calenders made to order for our customers.

Given product specifications and required maximum speed, we will design, build and install all basic and auxiliary equipment required for your complete manufacturing process.

We invite your inquiry concerning calendering or any other rubber or plastics processing problem.



32" x 92" FOUR-ROLL PRECISION CALENDER

This unit is geared to produce 72" wide vinyl film, 2 mils and less in thickness, at production speeds up to 150 YPM. It is equipped with anti-friction bearings, zero clearance, motor operated stock guides, motor operated roll crossing device, flood lubrication, universal couplings, pinion gear stand, drilled rolls and automatic temperature control. The electrical drive includes separate DC motors for each component, with speed trimming devices. Auxiliaries consist of embossing equipment, cooling unit and automatic turret-type windup.

ADAMSON UNITED COMPANY

730 CARROLL ST., AKRON 4, OHIO

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Plants at: Pittsburgh • Vandergrift • New Castle • Youngstown • Canton

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"Out in the cold"? Not with Skellysolve!

Skellysolve for Rubber and Related Industries

Applications

SKELLYSOLVE B. For making quick-setting cements for the shoe, tape, container, tire and other industries. Quick-drying, with no foreign taste or odor in dried compound. Closed cup flash point about −20°F.

SKELLYSOLVE C. For making quick-setting cements with a somewhat slower drying rate than those compounded with Skellysolve B. Closed cup flash point about 13°F.

SKELLYSOLVE D. For cements and variety of manufacturing operations. Good odor. Quick drying. Minimum of heavy, greasy compounds. Closed cup flash point about 3°F.

SKELLYSOLVE H. For general use in manufacturing operations and cements, where faster evaporation rate than that of Skellysolve D is desired. Closed cup flash point about −20°F.

SKELLYSOLVE V. For use wherever a relatively slow drying solvent is desired. Closed cup flash point about 50°F.

SKELLYSOLVE R. For general use in tire building and a variety of other manufacturing operations and cements. Reduces evaporation losses. Medium quick final dry. Lessens bloating and skinning tendency. Closed cup flash point about −25°F.

"DOC" MacGEE SAYS: Your product will never be "out in the cold" because of solvent uncertainties – not when you standardize on Skellysolve. More than 20 years' experience proves you can depend on Skellysolve to guard the quality of your product – and to help keep your plant operations rolling smoothly . . . with no time out because of solvent let-downs.

You're never in doubt about Skellysolve's uniformity. Every batch has the same over-all properties to protect your product's high quality and to enhance its sales appeal. Here is uniformity guarded by Skellysolve's laboratory tests, unsurpassed manufacturing methods, plus strict quality controls. Remember, too, that Skellysolve is not a "sideline" with us, but a major product operation.

What features do you look for in your solvents? If they're low end points, controlled evaporation, low vapor pressure, a minimum of unsaturates and pyrogenic decomposition products—you get them *all* with Skellysolve!

And Skellysolve's minimum of low and high boiling compounds helps reduce rejects due to blushing and blisters. Controlled vapor pressure reduces danger of bloated containers . . . and minimum of low boiling compounds eliminates "seeds" from rubber cements. Freedom from greasy residues assures rubber cements of high bonding strength.

Write now for more complete technical facts. And if you require special help on solvent applications, you are invited to consult with the Skellysolve Technical Fieldman.

SKELLY

Skellysolve

SOLVENTS DIVISION, SKELLY OIL COMPANY,
KANSAS CITY, MISSOURI

White walls are back

and UNITANE® 0-220

TITANIUM DIOXIDE

is available
for maximum whitening
at minimum cost

You secure maximum whitening with minimum loading—and minimum cost—in your rubber products with UNITANE O-220.

Specify it for brilliance in white and tinted articles. And—it gives that clean, snappy brightness to white side-wall stock.

Your Calco representative will gladly advise you on the grade of UNITANE best suited to your needs.

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CALCO CHEMICAL DIVISION
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BOUND BROOK, NEW JERSEY

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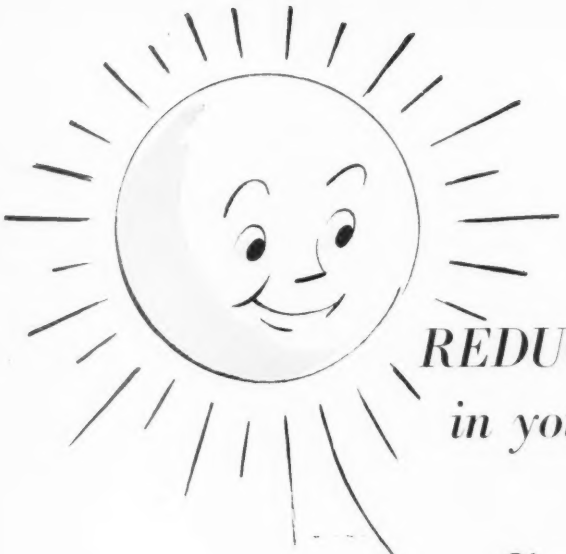

How to REDUCE BLISTERING in your tile processing with

SOLKA-FLOC®

It's an easy job. Just use 20 volumes of SOLKA-FLOC to replace an equal volume of mineral filler. In addition to reduced blistering you'll get harder, smoother surfaces . . . sharper designs . . . controlled shrinkage . . . reduced nerve . . . easier processing.

SOLKA-FLOC, a highly purified cellulose, has found wide application in the rubber field. In fact, it has proved to be such a valuable processing aid in the manufacture of such products as tiling, soling, matting, molded goods, extruded goods, etc., that *Brown Company has doubled its production of* SOLKA-FLOC.

Why not find out more about its use in processing? It could mean a better product, bigger profits for you. Write Technical Service, Dept. GF-6, at Boston, for recommendations and samples.

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CRYSTEX

INSOLUBLE SULPHUR

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Commercial Rubbermakers' Sulphur Tire Brand, 99½% Pure
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"Conditioned" Rubbermakers' Sulphur
Carbon Tetrachloride
Carbon Bisulphide
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Borax
Flowers of Sulphur, 99½% Pure
(30% Insoluble in CS_2)

Stauffer CHEMICALS SINCE 1885

Now that you can again manufacture white wall tires, you will want to prevent production losses that occur if a quality insoluble sulphur is not used. You well know the ugly stains and unsalable off-color product caused by sulphur bloom when ordinary sulphur is used. By using CRYSTEX, guaranteed to contain at least 85% insoluble sulphur, you can produce the cleanest and whitest of white-wall tires.

Let us send you our circular which describes CRYSTEX. It lists various applications of CRYSTEX such as tire carcass stocks, white sidewalls, tube-stocks, re-tread and other repair stocks, mechanicals, naphtha cements, latex dispersions, reclaim stocks and bin stocks. Write for your free copy of this Crystex circular today.

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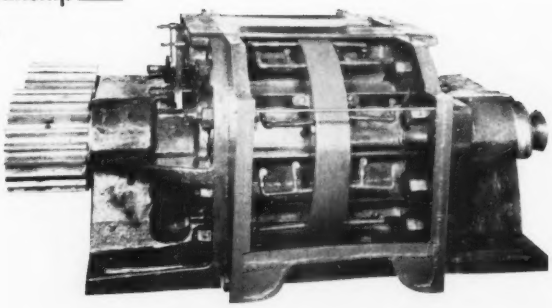
Workmanship
Service



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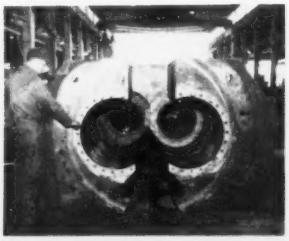
Interstate Banbury Rebuilding Service enables you to replace any worn Banbury body faster. Two options are available to you.

You can INTERCHANGE your old mixer body for one of ours, already completely rebuilt, — or you can use our "PRE-PLAN" method to have your present body rebuilt and returned to you.

Either way YOU SAVE valuable weeks of production time. Interstate Service has been perfected through seventeen years of specialized experience. Write us for a reservation. Estimates gladly furnished.



Our plant facilities handle every size and type of Banbury. Shown at right are size #27 side jackets rebuilt by Interstate. Jackets bored out and 2-inch high carbon steel sleeves inserted.

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EXCLUSIVE SPECIALISTS IN BANBURY MIXER REBUILDING

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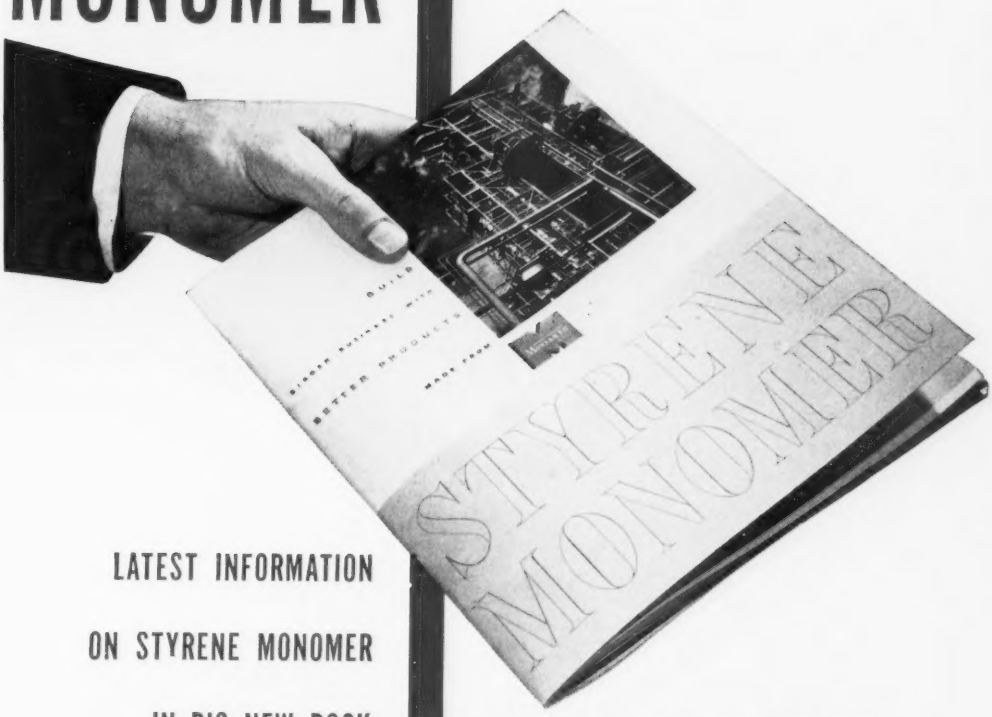
STYRENE MONOMER



LATEST INFORMATION ON STYRENE MONOMER IN BIG NEW BOOK

Treating styrene monomer as the starting point for large-volume chemical manufacturing, this new book discusses manufacturing and application possibilities of Styrene Butadiene Emulsions, Styrene Polyester Resins, Elastomers, Styrene Modified Alkyd Resins, Styrenated Oils, Ion Exchange Resins, Adhesives and Bonding Agents . . . Under each of these major headings is included a discussion of end products which are being developed in constantly increasing number.

MONSANTO
CHEMICALS — PLASTICS

Serving Industry . . . Which Serves Mankind

SEND FOR YOUR COPY

Regardless of your interest in styrene monomer, its derivatives and their growing applications, you will undoubtedly find this new book of considerable interest and value. It is an extensive treatise just prepared by the Texas Division of Monsanto, which recently doubled its styrene monomer capacity . . . Send for your copy of this helpful new book. If you please, indicate your use for styrene or its derivatives. Use the coupon, or write MONSANTO CHEMICAL COMPANY, Texas Division, Texas City, Texas.

MONSANTO CHEMICAL COMPANY, Texas Division, Texas City, Texas

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Name.....Title.....

Company.....

Street Address.....

City.....Zone.....State.....

We use styrene monomer, or derivatives, for

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STICKS CLOSE
to any
(METAL) BASE...

TY·PLY

the RUBBER-to-METAL ADHESIVE

that scores every time!

TY-PLY **Q** or **3640** for bonding Natural, GR-S, and Butyl

TY-PLY **S** for bonding Neoprene

TY-PLY **BN** for bonding N-types

TY-PLY will adhere most vulcanizable rubber compounds to almost any clean metal surface.

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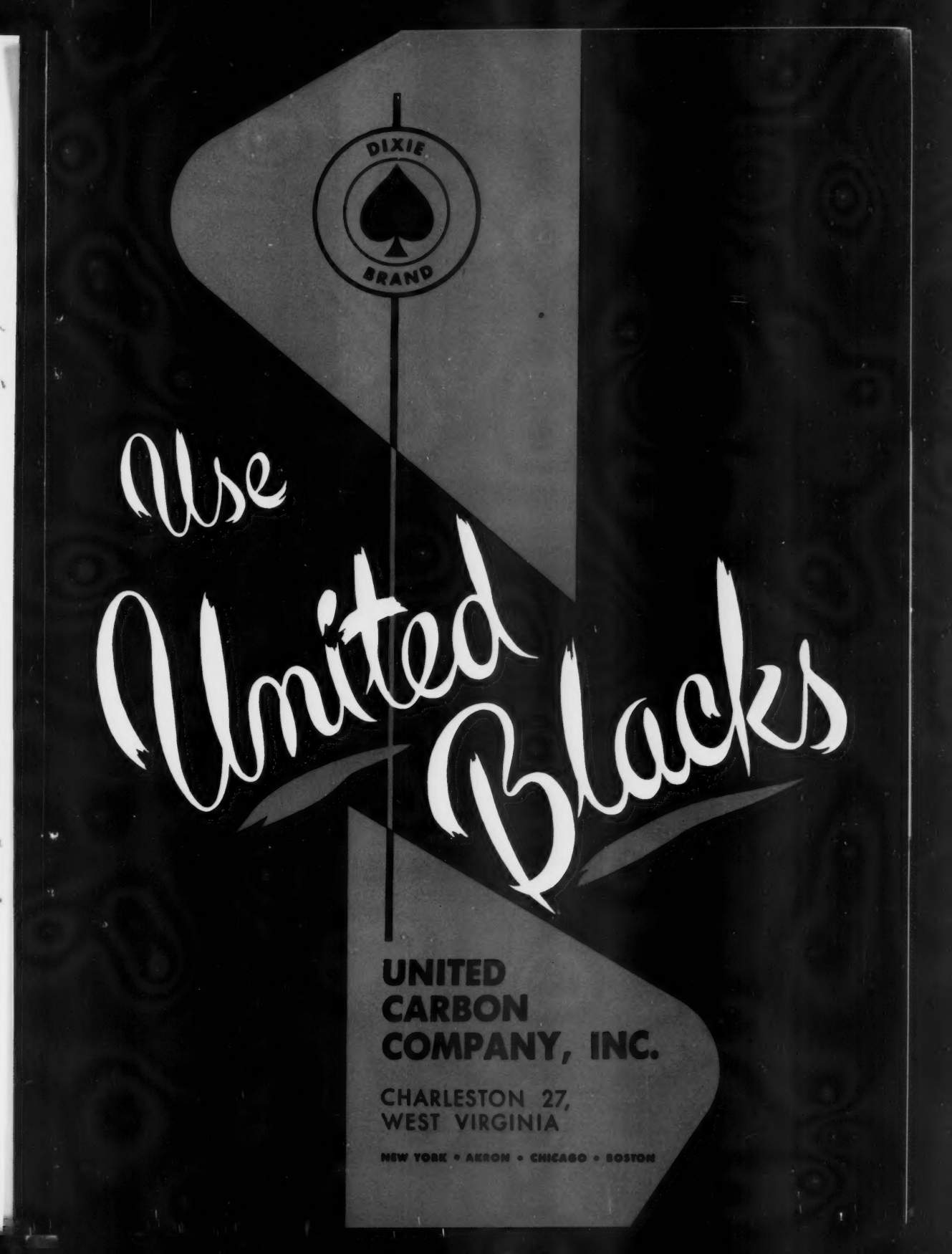
MARBON CORP.
GARY, INDIANA
SUBSIDIARY OF BORG-WARNER

TY-PLY has stood the test of time....since '39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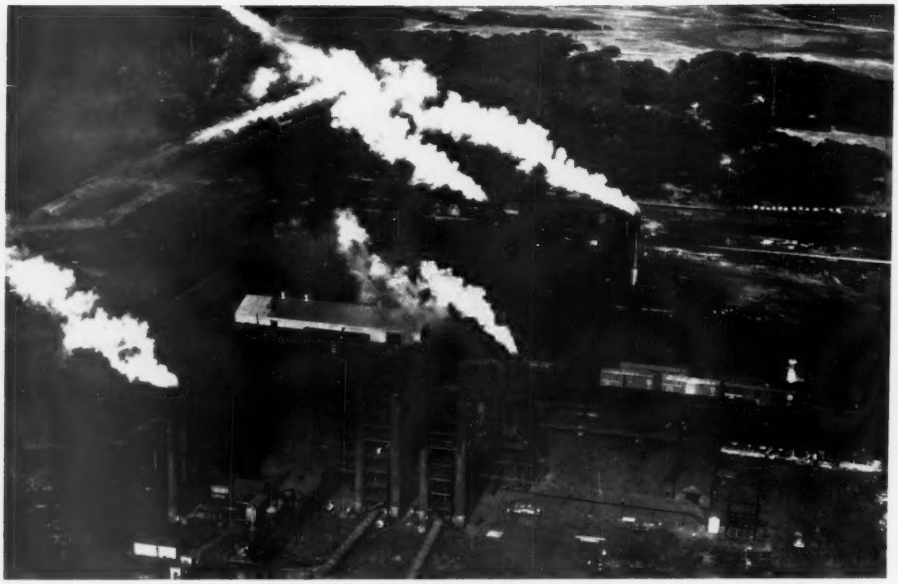


AERIAL VIEW OF THE COMPANY'S CARBON BLACK FURNACE PROCESS PLANTS AT ARANSAS PASS, TEXAS

DIXIE 50

Dixie 50, a quality furnace black (FEF) with superb processing characteristics and outstanding reinforcement, is continuously being used by discerning compounders with gratifying results in a variety of stocks.

There are no problems with United Blacks.

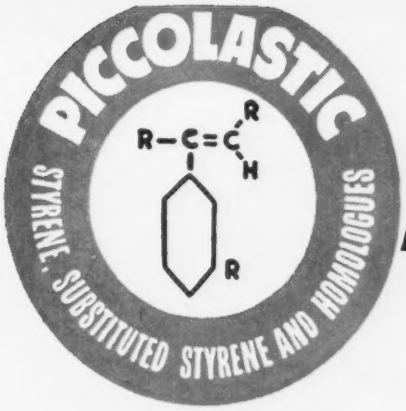
UNITED CARBON COMPANY, INC.

CHARLESTON 27, W. VA.

NEW YORK • AKRON • CHICAGO • BOSTON

CANADA: CANADIAN INDUSTRIES, LIMITED

Synthetic PICCOLASTIC Resins

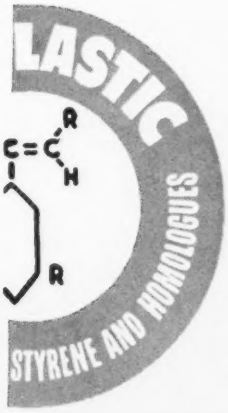


PALE · STABLE

UNSAPONIFIABLE

PERMANENTLY THERMOPLASTIC

ACID AND ALKALI RESISTANT



Piccolastic resins comprise a wide assortment of melting points, molecular weights, solvencies and other properties. They are permanently thermoplastic, and are soluble in aromatic hydrocarbons.

Used for rubber compounding, plasticizing, extending—for floor tile, adhesives, wire and cable insulation, and other products. Write for bulletin giving description and properties of each type. We will be glad to send samples for your examination and test. Please specify the application so that we may send suitable grade.

PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.

Clairton, Pennsylvania

Plants at: Clairton, Pa.; West Elizabeth, Pa.; and Chester, Pa.

Distributed by Harwick Standard Chemical Co., Akron 5, Ohio

VULCACURE • VULCACURE • VULCACURE • VULCACURE

AQUEOUS SUSPENSIONS OF ULTRA ACCELERATORS

ALCO OIL & CHEMICAL CORPORATION

First to Present as Prime Producers

AQUEOUS SUSPENSIONS OF ULTRA ACCELERATORS,
BY A NEW PROCESS, FOR LATEX COMPOUNDING

VULCACURE

VULCACURE ZM
50% Zinc Dimethyldithiocarbamate

VULCACURE ZE
50% Zinc Diethyldithiocarbamate

VULCACURE ZB
50% Zinc Dibutyldithiocarbamate

VULCACURE NB
47% Sodium Dibutyldithiocarbamate

•

PROVEN PRACTICAL AND ECONOMICAL

PARTICLE SIZE EQUIVALENT
TO FORTY-EIGHT HOUR BALL MILLED DISPERSIONS

•

TRENTON AVENUE & WILLIAM STREET, PHILADELPHIA 34, PA.

AQUEOUS SUSPENSIONS OF ULTRA ACCELERATORS

VULCACURE • VULCACURE • VULCACURE • VULCACURE

Schrader Contributions to the Tire Industry

IT'LL TAKE HOURS TO FILL THIS TIRE!
THESE EARTHMOVER TIRES ARE GOING TO NEED A SPECIAL VALVE IF WE'RE TO MAKE 'EM PRACTICAL.
BUT HOW CAN WE SOLVE THE INFLATION PROBLEM?
A SCHRADER MAN WAS IN TO SEE ME LAST WEEK. HE SAYS THEY'D BE GLAD TO HELP.
BUT WE ONLY NEED 200 OF THESE, WILL THEY MAKE THEM AND WHAT'LL THEY COST?
MY EXPERIENCE PROVES SCHRADER'LL DO ANYTHING TO HELP US IMPROVE OUR TIRES. LET'S CALL THEM IN AND CHECK.
MAKE IT SOON
FINE THIS IS RIGHT UP OUR ALLEY. I'LL MAKE THIS MY NEXT JOB.

And so the large bore valves were born. The initial development led to a whole new line of special tire valves and accessories which are now available for general use.

This is but one example of how Schrader specializes in service... moves quickly to develop *new* tire valves to meet *new* tire problems.

A. SCHRADER'S SON, BROOKLYN 17, N. Y.
Division of Scovill Manufacturing Company, Incorporated

Schrader
REG. U. S. PAT. OFF.

FIRST NAME IN TIRE VALVES
FOR ORIGINAL EQUIPMENT AND REPLACEMENT

There's an easier way to separate SHEET or SLAB stock and lots healthier, too!

"AQUAZINC" IS YOUR ANSWER!

Using elephants to pull sheeted stock apart would be novel — but using Aquazinc to *keep* it apart is lots smarter! Highly concentrated zinc stearate solution — Aquazinc is applied as a spray or dip — eliminating the health and explosion hazards of dusting — the need for liners or cushions. Developed especially for sheet-mill or slabbed stock, Aquazinc lubricates too, giving you a smooth-flowing stock plus perfect tack control. It is readily absorbed, without affecting the stock — leaves a glossy, non-greasy finish that adds appearance-appeal. Let us send a sample of Aquazinc to try in your own plant.

BEACON

PURITY · UNIFORMITY · DEPENDABILITY

Chemical Industries, Inc.

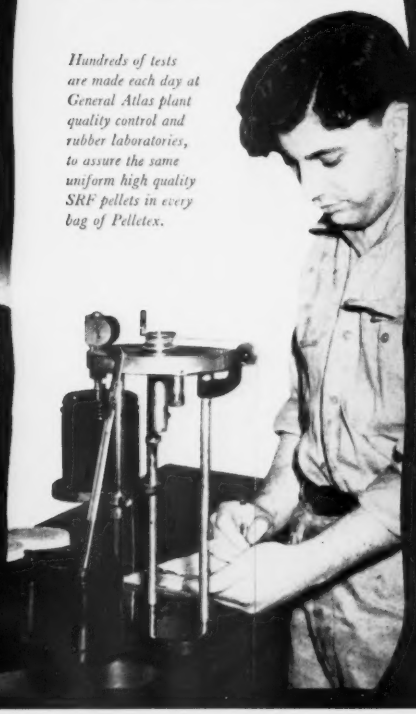
BOSTON (Cambridge) MASS.

It's in the Bag*...

A BAG OF PELLETEX, that is.

*Scientific Control

Hundreds of tests are made each day at General Atlas plant quality control and rubber laboratories, to assure the same uniform high quality SRF pellets in every bag of Pelletex.



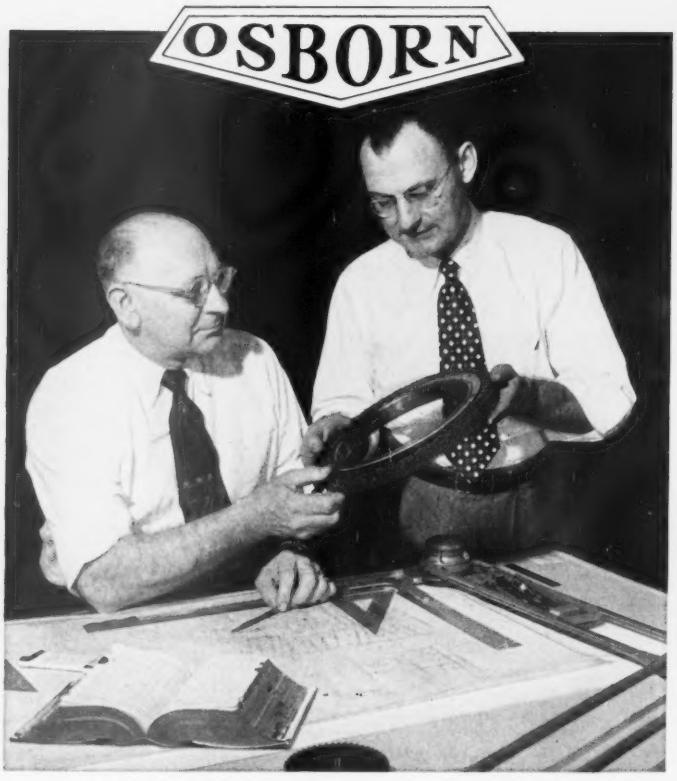
CABOT

The GENERAL ATLAS Carbon Co.

77 FRANKLIN ST., BOSTON 10, MASS.

Herron Bros. & Meyer Inc., New York and Akron • Herron & Meyer of Chicago, Chicago
Raw Materials Company, Boston • H. N. Richards Company, Trenton
The B. E. Dougherty Company, Los Angeles and San Francisco
Detacour-Gorrie Limited, Toronto and Montreal

Scientific Control
Pellet Quality
Product Uniformity
Dependable Delivery
Company Stability



Board of strategy for your "Operation Push Button"

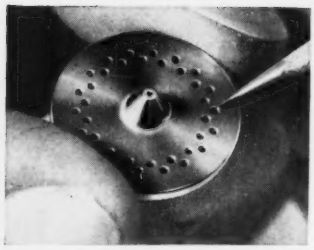
Your need for mechanization today finds a powerful ally in the machine design talents of Osborn.

When your **O**sborn **B**rushing **A**nalyst recommends the latest in "push button" brushing methods to solve your cleaning and finishing problems he is backed by experienced engineers and craftsmen—research men, designers and production men who serve you these ways: (1) They develop basic brushing methods to solve your problem. (2) They help your engineers or your machine builder to design the right brushing machine for you. (3) If desirable, they even design the brushing machine for you and supervise its construction. The proper approach depends on *your* needs. The main thing is:

You *know* your brushing problems are in good hands when you call in your **OBA.** This thorough service is yours for the asking. Call today or write *The Osborn Manufacturing Company, Dept. 749, 5401 Hamilton Ave., Cleveland 14, Ohio.*

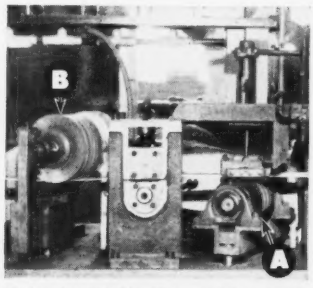
Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES



TINY BUT TOUGH. Drilling of this nickel-size stainless steel part of an aircraft engine left burrs around the edges which were difficult to remove. The **O**sborn **B**rushing **A**nalyst helped solve the problem by using Osborn brass wire brushes and an abrasive compound with the right amount of grit. Now burrs come off clean and sharp corners of holes are well rounded . . . *at the push of a button.*

TRY MASTER® STRIP. This Osborn Brush is available in forms, shapes, sizes and fill material to match your job of cleaning, scrubbing or finishing . . . to boost your output and cut your costs . . . *at the push of a button.*



IT'S AUTOMATIC. This machine, developed with the help of the **O**sborn **B**rushing **A**nalyst, cleans steel-backed, babbitt-lined strip for production of automotive sleeve bearings. With the strip traveling continuously, Osborn Master® Wheel Brushes (A) remove all dirt, rust and metal particles from the steel surface. Osborn Monarch® Sections (B) then thoroughly clean the babbitt side. Perhaps a similar brushing method can help improve *your* production . . . *at the push of a button.*

INDUSTRIAL RUBBER PRODUCTS

Made to Quality standards

with NEVILLE **Coumarone Resins**

You can improve product quality and save in production costs with Neville Resins. These coumarone resins are extender-plasticizers, which will not lower hardness, tensile, modulus or tear.

They come in grades of various melting points and colors.

Let us give you the benefit of years of research and experience on your rubber production problems, and help you select the right grade for your purpose.

THE NEVILLE COMPANY PITTSBURGH 25, PA.

Plants at Neville Island, Pa., and Anaheim, Cal.

Sure cure for the "shakes"

UNDER the terrific vibration of aircraft engines, screws and nuts have a tendency to become loose. That's why Army, Navy and Air Corps specifications call for safety wiring on engine mountings, instruments, gun sights, magnetos . . . *every* place on a plane where a screw or nut might shake loose.

By simply drawing the lock wire through a small hole in each nut or screw, and then twisting tightly with pliers, a positive sure cure for the "shakes" is provided.

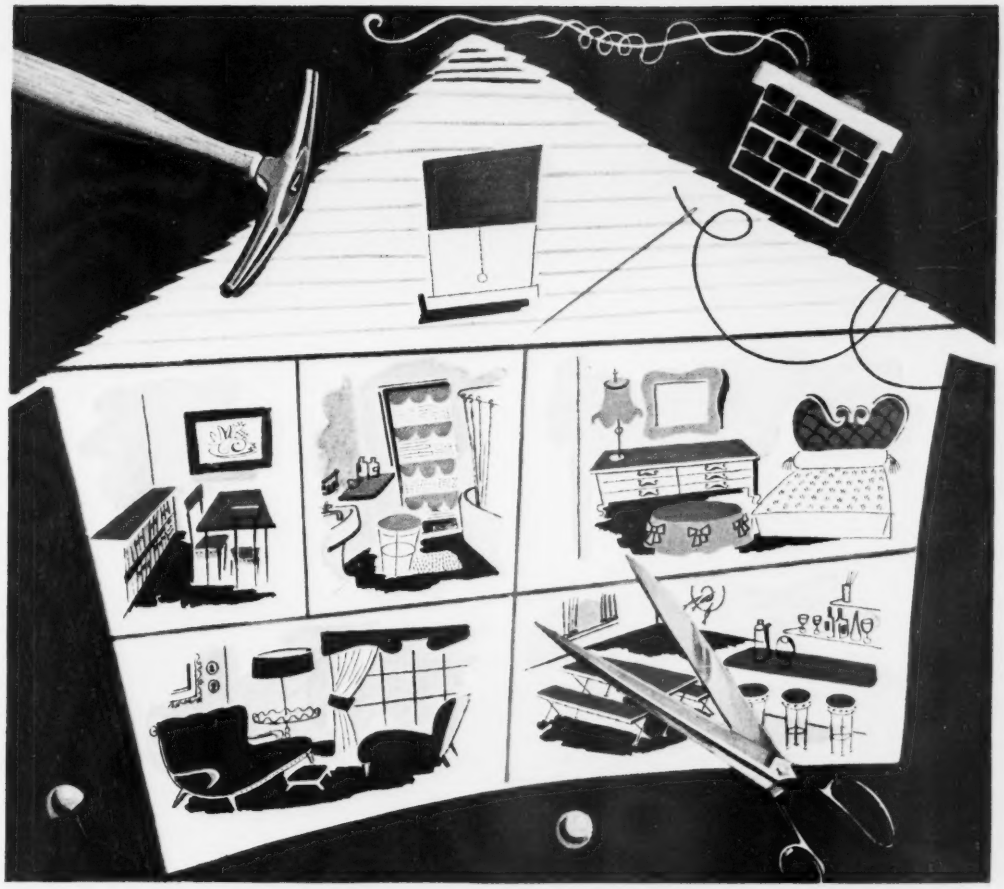
Wire for this important function must be highly resistant to corrosion, tough enough to resist fracturing under the heat and vibration of aircraft engines, and soft enough to twist with pliers for quick assembly and replacement of parts. Here at National-Standard we've developed a type of slow-annealed stainless steel wire to fully meet these exacting requirements. And we're drawing millions of feet of this wire, not only for aircraft but also for many other automotive applications.

Developing special wire for special purposes has been an important part of National-Standard's business for more than 45 years. Perhaps our unique engineering and manufacturing facilities can help you with your wire and wire fabricating problems.

NS
NATIONAL-STANDARD Company
NILES MICHIGAN

DIVISIONS OF NATIONAL-STANDARD CO.

ATHENIA STEEL	*Clifton, N. J.* — Flat, High Carbon, Cold Rolled Spring Steel
NATIONAL-STANDARD	*Niles, Mich.* — Tire Wire, Stainless, Fabricated Braids and Tape
REYNOLDS WIRE	*Dixon, Illinois* — Industrial Wire Cloth
WAGNER LITHO MACHINERY	*Jersey City, N. J.* — Lithographing and Special Machinery
WORCESTER WIRE WORKS	*Worcester, Mass.* — Round and Shaped Steel Wire, Small Sizes



Decorator beauty—just snip, fit, and tack!

...more good news from Marvinol vinyl!

There's no end to the wonders this plastic can work! Look what it's done for home life—how easy it has made interior decorating!

Thanks to soft, easy-to-work material made from Marvinol vinyl resins, you can enrich your home in hundreds of colorful ways. Inexpensively, too! You can hang, drape, tack, or sew this wonder material—buy it by the yard almost anywhere!*

And how it simplifies housekeeping! Just laughs off common household annoyances! With one wipe of a damp cloth, alcohol, grease, most chemicals simply disappear!

This home-beauty aid is just one more example of the way Marvinol vinyl resins are helping manufacturers to finer, more durable products. If you're a manufacturer, there's an excellent chance Naugatuck Chemical's Marvinol can help you, too. Why not find out? Write today to the address below.

**Names of manufacturers and brand names available on request.*

Naugatuck Chemical Division of **United States Rubber Company**

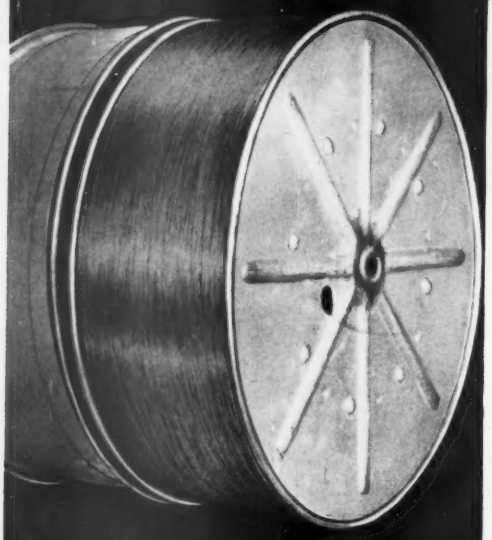
207 ELM STREET, NAUGATUCK, CONNECTICUT

Branches: Akron • Boston • Charlotte • Chicago • Los Angeles • Memphis • New York • Philadelphia • **In Canada:** Naugatuck Chemicals, Elmira, Ont.

MARVINOL® vinyl resins • **KRALASTIC®** styrene copolymers • **VIBRIN®** polyester resins

Rubber Chemicals
Aromatics
Synthetic Rubber
Agricultural Chemicals
Reclaimed Rubber
Latices

If it's steel wire- JOHNSON specialists make it better



Hose REINFORCEMENT WIRE

JOHNSON special bronze plated wire, for many years the preference of major tire manufacturers — now available for vacuum and defroster hose producers, in addition to conventional finish wire.

- Uniformly clean finish
- Maximum adhesion to rubber
- Higher elongation • Extra fatigue properties

Johnson line of specialty wires also includes oil-tempered and coldrawn brush wire—tire bead wire—steel wire for field telephones—music spring wire.

JOHNSON

STEEL AND WIRE COMPANY, INC.

Worcester 1, Mass. Akron, Ohio Los Angeles, Calif.

This FREE folder gives the facts about...

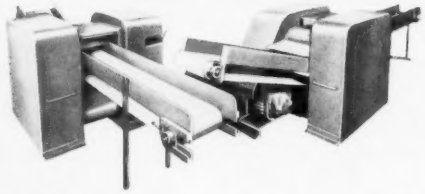
CUTTERS

FOR THE RUBBER INDUSTRY

This new 4-page folder describes the details of construction of cutters suitable for use in the manufacture of rubber products and gives some of the uses made of them.

Among the many types of cutters are:

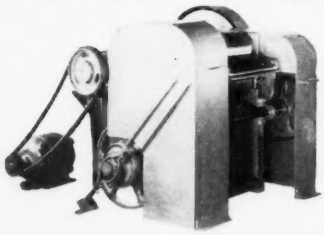
TAYLOR-STILES TANDEM CUTTERS



—for cross cutting sheets of rubber stock into pieces of approximately uniform size.

•

TAYLOR-STILES DICING CUTTERS



—produce pellets from sheets of rubber stock in a single operation.

Selection of any one of these cutters for a specific cutting job takes into consideration the kind of cuttings, the stock to be cut, and the end uses of the cut stock.

TAYLOR-STILES and Company
CUTTING MACHINES & KNIVES

Send for your copy of this rubber cutter folder today.

216 BRIDGE STREET
RIEGELSVILLE, NEW JERSEY

NEW! Butaprene N® FORMULA

WITHSTANDS ARCTIC COLD

MEETS FF Specs. for SB-615A, B, E-1, E-3, FF

Formula B-6030-L*

ALL CURES 20' @ 320° F.	RESULTS	SPECIFICATION
Normal Tests		
Tensile psi	1625	1500 min.
Elongation %	350	300 min.
Durometer "A"	57	60 ± 5
Oven Aged 70 Hrs. @ 212° F.		
Change in Tensile	+ 28%	— 20% max.
Change in Elongation	— 24%	— 50% max.
Change in Hardness	+ 7	0 to + 15
Immersed 70 Hrs. @ 212° F. in ASTM No. 1 Oil		
Change in Tensile	+ 26%	— 20% max.
Change in Elongation	— 9%	— 40% max.
Change in Hardness	+ 8	— 5 to + 10
Change in Volume	— 8.11%	— 10 to + 5%
Immersed 70 Hrs. @ 212° F. in ASTM No. 3 Oil		
Change in Tensile	+ 2%	— 40% max.
Change in Elongation	— 23%	— 45% max.
Change in Hardness	— 8	— 10 to + 5
Change in Volume	+19.05%	0 to + 25%
Compression Set ASTM Method B		
70 Hrs. @ 212° F. (Cure 25' @ 320° F.)	16.3%	35% max.
Deflection	30%	30%
Cold Resistance		
(5 Hrs. @ —65° F.)	OK	No cracks or breaks

*Recipe on request.

XYLOS RUBBER CO.
DISTRIBUTOR
AKRON 1, OHIO

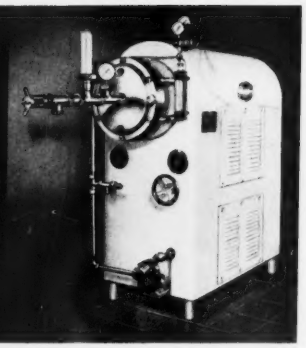
SEND FOR THIS BOOKLET . . . .
Gives Complete Information and Technical Data for SB Compounds

Write:
XYLOS RUBBER CO.
Technical Service Division
Akron 1, Ohio

OAKES

CONTINUOUS, AUTOMATIC

FROTHING MACHINE



Partial List of Users

American Foam Rubber Corporation
Burlington, New Jersey

American Latex Products Corporation
Hawthorne, California

Amertex Manufacturing Corporation
Portsmouth, Virginia

Armour & Company, Chicago, Illinois

Armstrong Rubber Company
West Haven, Connecticut

Automotive Rubber & Carpet Industries, Inc.
Yonkers, New York

Crown Rubber Company, Fremont, Ohio

Dunlop Tire & Rubber Corporation
Buffalo, New York

Faultless Rubber Company, Ashland, Ohio

Firestone Rubber & Latex Products Company
Fall River, Massachusetts

Fremont Rubber Company, Fremont, Ohio

Globe Manufacturing Company
Fall River, Massachusetts

Goodyear Tire & Rubber Company, Akron, Ohio

Hewitt-Robins, Incorporated, Buffalo, New York

International Latex Corporation
Dover, Delaware

James Lees & Sons Company
Bridgeport, Pennsylvania

Toyad Corporation, Latrobe, Pennsylvania

United States Rubber Company
New York, New York

Most installations use more than one unit.

If you are considering foam latex—natural or synthetic

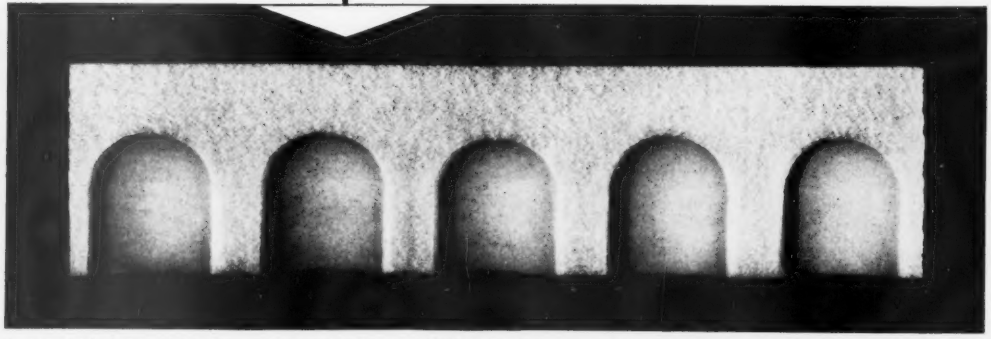
THE CONTINUOUS WAY IS THE PROFITABLE WAY!

Here is what the AMF-Oakes Continuous, Automatic Frothing Machine can do for you:

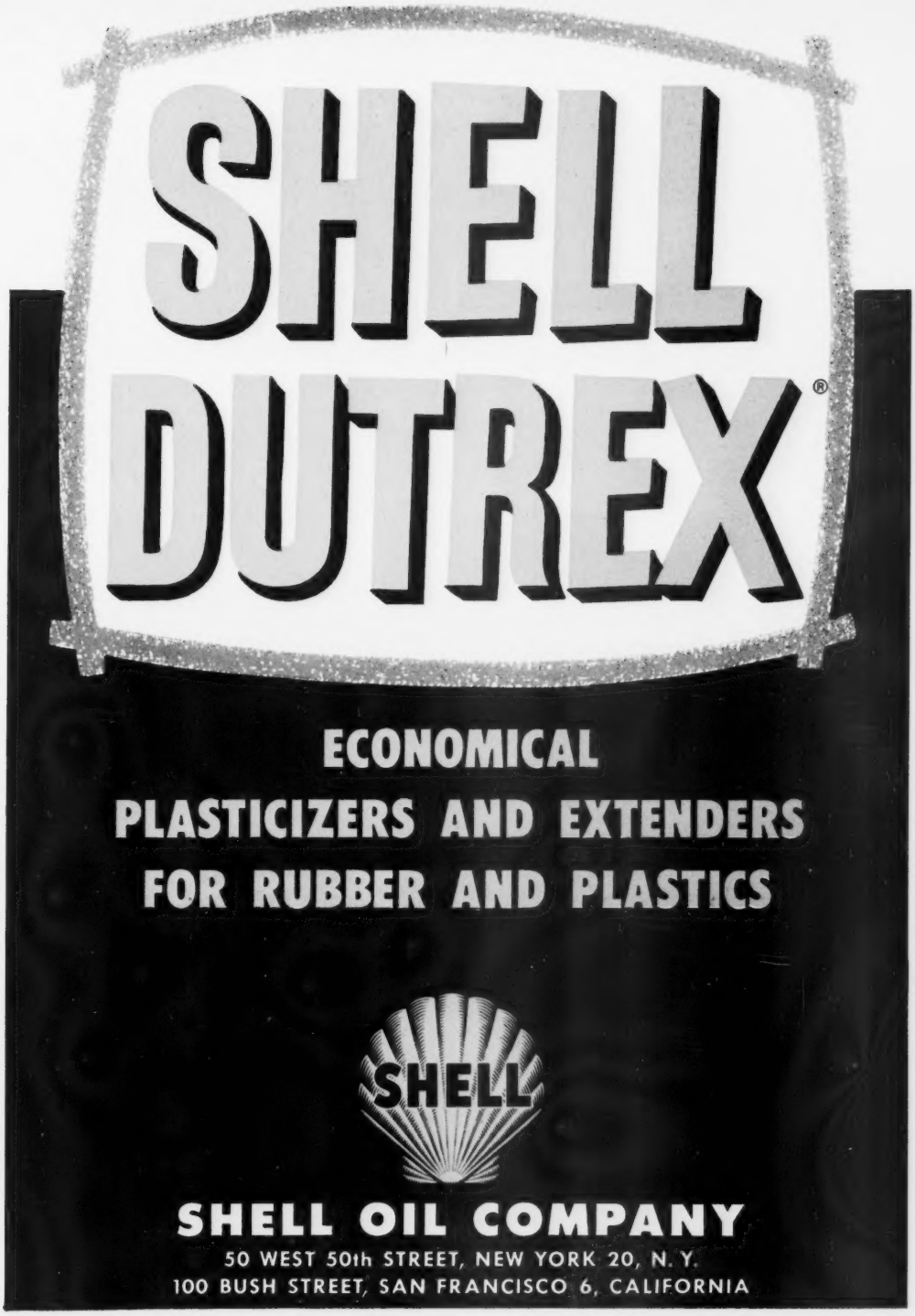
- Froth 200 to 2,000 pounds of foam latex per hour.
- Produce latex blow-ups of 6 to 18.
- Suitable for slabs, molds, rug backings, pillows, mattresses, furniture and automobile upholstery.
- Ideal for INJECTION MOLDING.

For Complete Information...

Write to Mr. T. R. Stevens,
Continuous Mixing Division
AMERICAN MACHINE & FOUNDRY COMPANY
511 Fifth Avenue, New York 17, N. Y.



Unretouched photograph of foam rubber frothed on the AMF-OAKES Continuous, Automatic Frothing Machine. (Latex blow-up of 14)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DUTREX®
ECONOMICAL
PLASTICIZERS AND EXTENDERS
FOR RUBBER AND PLASTICS
SHELL
SHELL OIL COMPANY
50 WEST 50th STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

100th Anniversary

"HORSE HEAD" LEAD-FREE ZINC OXIDES

1852

The discovery and successful development, by our Company, of the American Process for making lead-free zinc oxide marked the start of "Horse Head" zinc oxides, which played important roles in the development of the infant rubber industry.

That process made possible the production of zinc oxide directly from the ore, rather than from metal, and provided for the first time a high quality zinc oxide at a reasonable price.

Down through the years, we have continued to pioneer outstanding developments in "Horse Head" zinc oxides for the rubber industry:

FIRSTS

Domestic French Process zinc oxides
Zinc oxides of U. S. P. purity
Zinc oxides especially for white rubber

EXCLUSIVES

Kadox zinc oxides—finest particle size
Protox* zinc oxides—treated with propionic acid for outstanding dispersion and processing

1952

Today, "Horse Head" lead-free zinc oxides continue to be the most-used in the rubber industry.

THE NEW JERSEY ZINC COMPANY

160 Front Street, New York 38, N. Y.

**U. S. Patents, 2,303,329 and 2,303,330*

4 ways you benefit from WITCO-CONTINENTAL Channel Blacks

Continental AA (EPC)
Witco No. 12

Continental A (MPC)
Witco No. 1

Continental F (HPC)
Witco No. 6

Continental R-40 (CC)

1. *Highest Quality*
2. *Complete service*
3. *Dependable supply*
4. *Immediate delivery*
   (hopper car or palletized bags)

WITCO CHEMICAL COMPANY

CONTINENTAL CARBON COMPANY

295 Madison Avenue • New York 17, N. Y.

Los Angeles • Boston • Chicago • Houston • Cleveland

San Francisco • Akron • London and Manchester, England

PRODUCTION BENEFITS

- ☐ Perfect Separation of Stock and Liner
- ☐ Less Power and Labor
- ☐ Horizontal Storage, if desired
- ☐ No Cleaning of Liners
- ☐ Longer Liner Life
- ☐ Less Stock Losses

BENEFITS TO STOCKS

- ☐ No Lint or Ravelings
- ☐ Oxidation and Bloom Prevented
- ☐ Air, Moisture & Sunlight Excluded
- ☐ Tackiness of Stock Preserved
- ☐ Gauges More Easily Maintained
- ☐ Greater Latitude in Compounding

Check these Important Advantages of

CLIMCO Processed Liners

These advantages are not mere claims, but have been demonstrated over and over by the use of Climco Processed Liners in all kinds of rubber plants during the last 30 years. Surely, in the interests of better production at less cost, Climco Liners are worthy of use in your plant.

ILLUSTRATED LINER BOOKLET

Tells all about Climco Liners and Linerette and how to get better service from liners. Write for your copy now.

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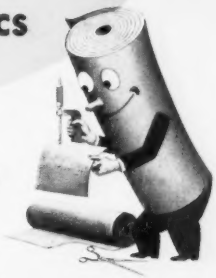
CLIMCO PROCESSED LINERS

LINERETTE INTERLEAVING PAPER
Treatment Contains **NO OIL OR WAX**
Samples on Request

SERVING THE RUBBER INDUSTRY FOR 30 YEARS

UNIFORMITY

Makes the Big Difference
In INDUSTRIAL Fabrics



MT. VERNON FABRICS Give You Greater Fabric Uniformity

Shown is one of a series of laboratory controls throughout production to assure uniformity in all Mt. Vernon-Woodberry products. Here fabric thickness after weaving is being gauged.

Mt. Vernon-Woodberry Mills

Branch Offices: Chicago • Atlanta • Baltimore • Boston • Los Angeles

TURNER HALSEY COMPANY
Selling To Textiles
40 WORTH ST. NEW YORK

applications of

VELSICOL RESINS

FOR RUBBER COMPOUNDING

GE-9—AB11-4—AB11-2

some suggested applications:

MECHANICAL GOODS
ELECTRICAL INSULATION COMPOUNDS
RUBBER SHOE SOLES AND HEELS
RUBBER FLOOR TILING
GASKETS AND JAR RINGS
RUBBER ADHESIVES AND CEMENTS
MOLDED RUBBER PRODUCTS
TUBULAR COMPOUNDS
RECLAIMED RUBBER
SHEETING
COLORED RUBBER STOCKS
BATTERY CASES
HARD RUBBER COMPOUNDS

features:

1. THERMOPLASTIC HYDROCARBON RESINS.
2. COMPATIBLE WITH NATURAL AND SYNTHETIC RUBBERS.
3. EFFECTIVE PLASTICIZERS AND SOFTENERS... in highly-loaded clay stocks or in recipes incorporating carbon black.
4. MILL READILY.
5. EXCELLENT DISPERSING AGENTS FOR FILLERS AND PIGMENTS.
6. FACILITATE PROCESSING PROCEDURES . . . impart excellent milling, calendering processing and tubing characteristics to stocks.
7. IMPART EXCELLENT PERFORMANCE CHARACTERISTICS . . . such as good tensile strength, elongation and modulus, as well as good resistance to abrasion and aging.
8. POSSESS HIGH ELECTRICAL RESISTANCE PROPERTIES.
9. AID IN THE DEVELOPMENT OF NON-SCORCHY STOCKS... without excessive retardation of cure at high temperatures.

For additional information concerning properties and applications of Velsicol Resins, write:

VELSICOL CORPORATION

GENERAL OFFICES AND LABORATORIES
330 E. GRAND AVE.
CHICAGO 11, ILL.

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EXPORT DIVISION
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NEW YORK, N. Y.

DOUBLE-CHECKED CHEMICALS
FOR THE RUBBER INDUSTRY

ETHYLAC

Gaining wide acceptance throughout the rubber industry . . .

- Greatly increased sales necessitated plant expansion.
- A new plant has been built.
- Immediate delivery is once again possible.
- Are you overlooking a good bet?

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SHARPLES CHEMICALS INC.

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Shawinigan Chemicals Ltd., Montreal—Toronto
Airco Company International, New York

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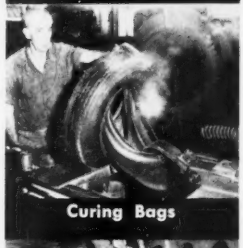
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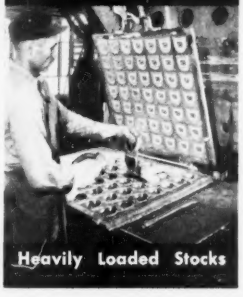
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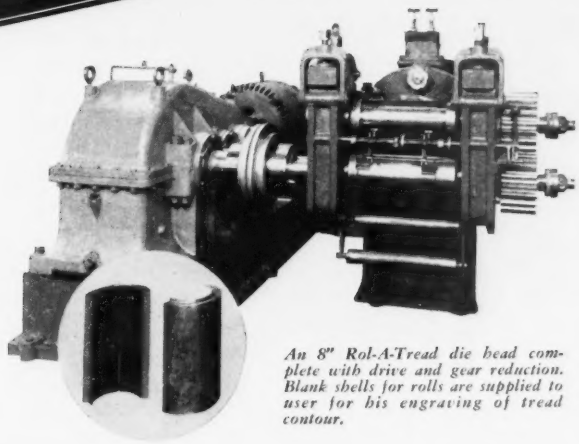

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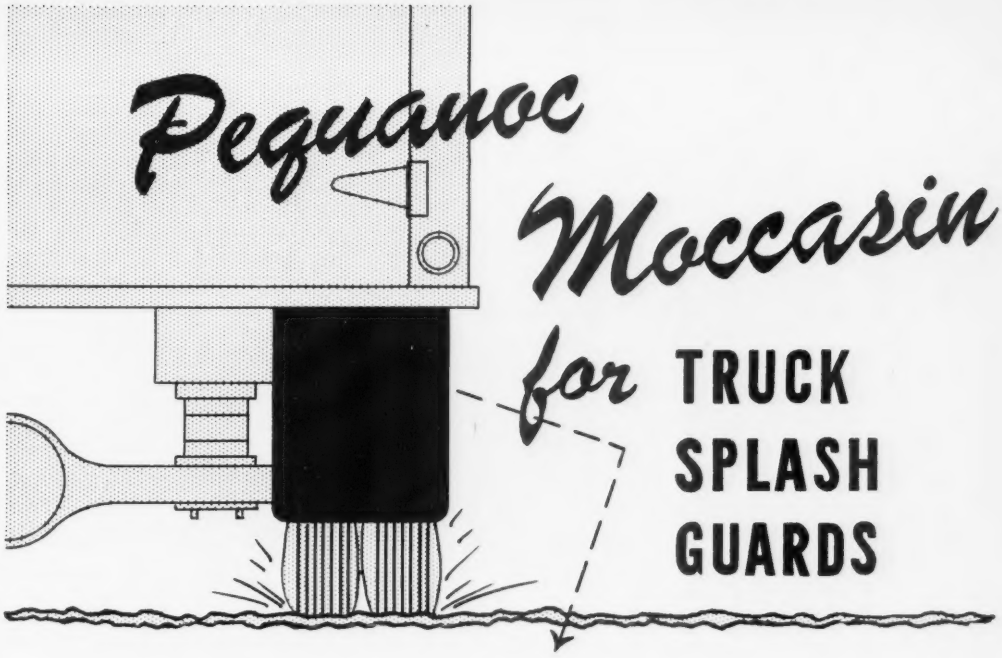

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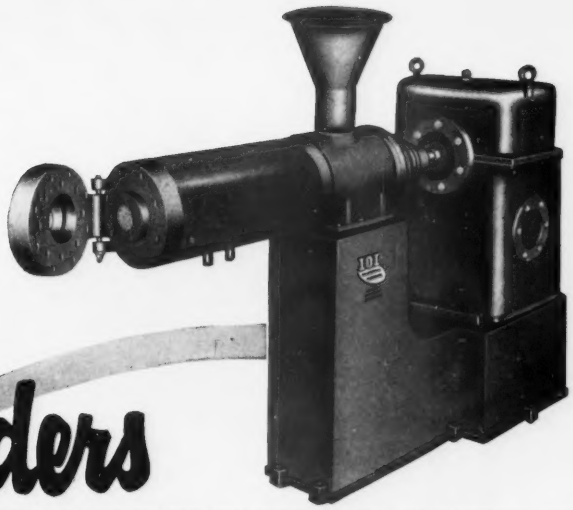

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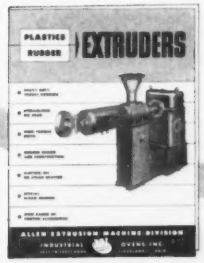

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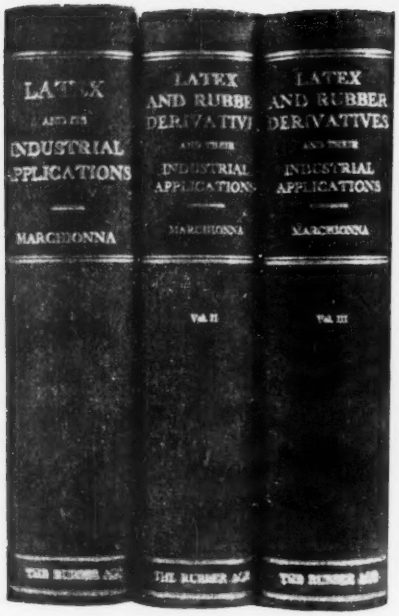

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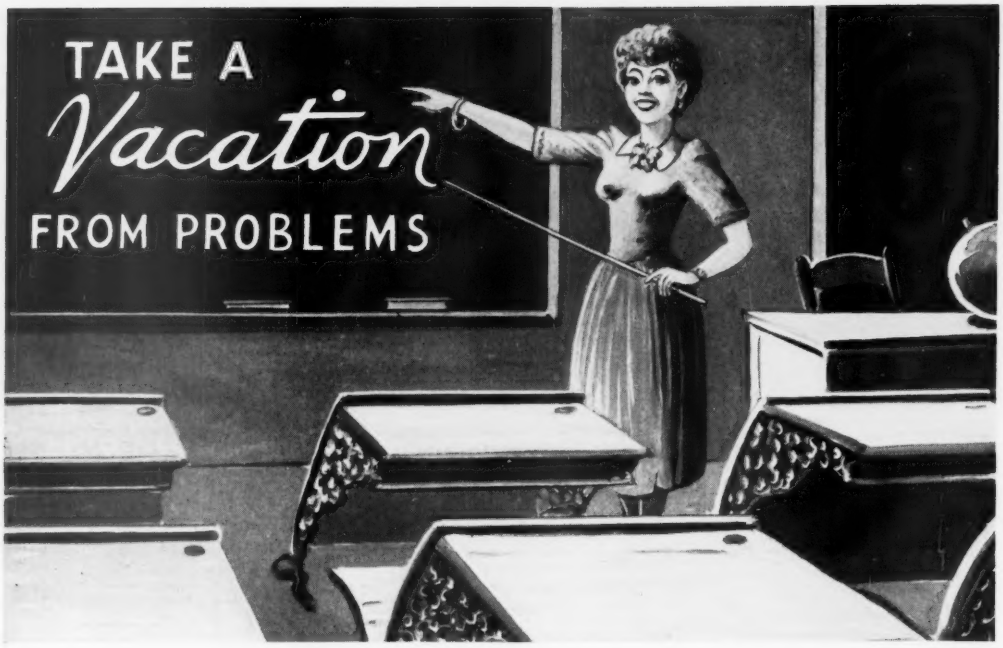

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RUBBER AGE

Vol. 71, No. 3 JUNE, 1952

Applications of the Stacomizer Press in Various Stages of Rubber Processing

By J. D. KEANE and F. W. BICKEL

Armour Research Foundation of Illinois Institute of Technology, Chicago 16, Ill.

RECENT work shows that the "Stacomizer" continuous hydraulic press may enable substantial advances to be made in the dewatering, working and compounding of rubber. This patented device *(10, 11, 12, 14)*, which has already shown its versatility in other industries *(2, 3)* employs a unique mechanical principle to obtain a remarkable high-capacity "bite" as it applies tremendous pressures on a continuous blanket of feed material. In the pulp and paper industry, as well as in the processing of cellulose acetate, this characteristic has led to important commercial applications *(1, 7)*. Pilot plant work is currently being done by the Armour Research Foundation in cooperation with Stacom Industries, Inc., of Long Island City, New York.

A number of other uses are in the developmental stage and several have become the subject of separate process patents *(13, 15, 16, 17)*. One of the most promising investigations is the mechanical extraction of guayule latex from the plant *(13, 18, 19)*, a study which will not be discussed in the present report. In the course of this work, however, it was suggested that the Stacomizer might also be used in doing mechanical work on the rubber itself. Early trials on the latter were extremely promising, but only recently has it been possible to interrupt work on other applications of the machine long enough to investigate the processing of rubber. Because of this time limitation, the experimental results to date are preliminary in nature. These early indications are considered so remarkable, however, that they merit the attention of the industry.

To date, potential advantages have been demonstrated in at least three stages of rubber processing: first, in the washing and dewatering of coagulum preparatory to drying; second, in the enhancement of polymer properties by working in the wet state; third, in improved batch and continuous mixing of elastomers. Each of these three possibilities is discussed briefly below.

Washing and Dewatering

The Stacomizer is able to accept wet rubber in almost any form and apply tremendous pressures upon it by virtue of its unique arrangement of mechanical elements. Basically, the machine consists of a free-floating hollow cylindrical ring which runs between two opposed rolls. One roll, called the back-up roll, is external to the large ring and approximately one-half the diameter of the ring; the second roll, called the work roll, turns within the ring and thereby forms a "horn angle" zone through which the feed is introduced under very gradually increasing forces until it reaches enormous pressures at the converging apex of the angle. Since the ring is supported only by the pressure between the two opposed rolls, it is free to move in accordance with variations in the feed. The floating ring is not driven, but rotates with the work roll by riding on a blanket of the material being processed.

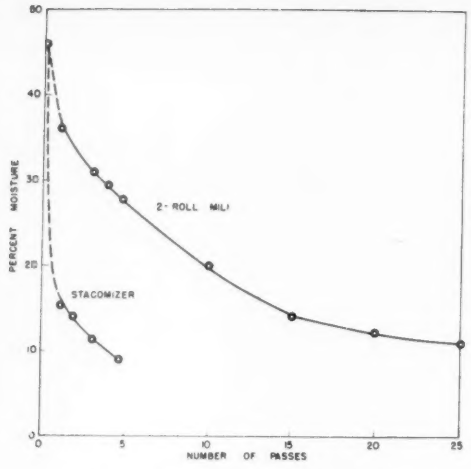

FIG. 1—Dewatering of rubber on the mill.

These two basic design features enable the machine to accept a relatively soft material, like rubber, and to apply pressures exceeding 15,000 pounds per inch of roll width, much higher than can be obtained in conventional processing equipment. This characteristic has led to the application of the machine to the dewatering of a large number of materials, including high styrene resins. As might be expected, this type of treatment of wet rubber results in a sheet suitable for drying, having (as indicated in Figure 1) a considerably lower moisture content even in a single pass than can ordinarily be achieved with longer processing in other types of equipment. Thus, one quick pass of the wet, washed coagulum through the rolls greatly reduces the amount of moisture to be removed in the dryer. Most of the moisture left in the sheet has been found to be surface water readily removable during the constant-drying period *(4)*. When the washed rubber is squeezed in this way, a corresponding reduction is also obtained in the residual electrolyte, soap and ash content.

No detailed data are yet available on the use of the Stacomizer for the entire washing operation, but work to date shows that rapid washing can best be achieved by mounting a spray in the nip. Through the action of the floating ring, the stock can be automatically carried back through the pressure zone any desired number of passes, with or without a rolling bank being formed in the nip. In this way the washing and dewatering operations can be carried out simultaneously with the working of the rubber.

Working Rubber in the Wet State

In the course of the exploratory work done with this machine, it has become evident that the type of work it performs upon rubber in the wet state has a marked effect upon the characteristics of the final product. For example, Table I shows some of the properties of a Hycar rubber formulation prepared from wet-stacomized gum compared with the same rubber which was either dried untreated or given a lengthier processing on a two-roll mill. Over the range of cures shown in the table, it appears that the product washed and dewatered in the Stacom press shows a higher elongation; in general, the tear resistance tends to be somewhat higher and the modulus lower. Increased stacomizing pressure tends to increase the tensile strength of the vulcanizate.

This type of data merely shows that even a single pass through the Stacom press under one particular set of conditions can have at least the same effect as a lengthier treatment in normal processing. In addition to the washing and dewatering effects noted, this machine apparently affords a method of obtaining ready feed acceptance of wet coagulum at high capacities, high pressures and low power input, with virtually no shear and a minimum of heat build-up.

It should be pointed out here that with other types of rubber and under other conditions of temperature and speed it also appears possible to achieve a breakdown of the polymer to obtain desirable increased plasticity. The explanation of the effects obtained during wet working is under study in order to determine whether the improved properties are due to the breakdown of

TABLE I—EFFECT OF WET-STACOMIZING UPON POLYMER PROPERTIES

Pre-Drying Treatment	Passes	Cure (Min. at 320° F.)	Modulus * (at 250%)	Tensile Strength * (lb./in.²)	Elongation * (per cent)	Tear † (lb./in.)	Hardness (Shore A)
None	0	15	1050	2450	400	235	66
		30	1250	2300	350	250	69
		45	1450	2400	350	250	69
Rubber Mill	25	15	1500	2700	450	250	65
		30	1750	2600	400	150	66
		45	1950	2950	400	150	67
Stacomized at 5,000 lb. per lineal inch	6	15	1500	2600	450	250	67
		30	1800	2750	450	250	67
		45	1900	2800	400	200	68
Stacomized at 10,000 lb. per lineal inch	3	15	1300	2550	500	200	66
		30	1650	2700	450	200	66
		45	1550	2700	400	200	66
Stacomized at 15,000 lb. per lineal inch	1	15	1450	2800	500	250	68
		30	1750	2900	450	250	68
		45	1900	3000	400	200	69

(*) ASTM D-412-49T, Tension Testing of Vulcanized Rubber. (†) ASTM D-624-48, Method A, Test for Tear Resistance of Rubber.

cross-linkages under extreme pressure in the wet state or to the effect upon soap, fatty acid, ash, pH and other chemical variables that affect the rate of cure. X-ray diffraction work should throw further light upon this subject. In any case, it is becoming fairly well established that this new method of applying higher unit pressures in the virtual absence of shear results in unique polymer properties and power savings.

Compounding on the Stacomizer

The series of samples used in these investigations was prepared by dividing coagulated and washed Hycar Latex Type 1561 into several portions before dewatering, drying and compounding. These fractions were then each compounded on a two-roll mill according to the following typical tread stock formulation:

Hycar (from 1561 latex)	100.00
Zinc Oxide	5.00
Continex SRF	60.00
Dioctyl Phthalate	15.00
Stearic Acid	1.00
Altax	1.75
Sulfur	2.00

Order of addition, roll spacing, temperature and mixing time were maintained constant for all of the compounds.

In further work with the above compound and with a clay-loaded stock, it was found that a part or all of the compounding could be carried out on the Stacomizer itself. By a controlled rapid addition rate of gum and compounding ingredients, a rolling bank is obtained which promotes rapid dispersion of ingredients at easily controlled temperatures.

There is now some reason to believe that this machine may not only permit special properties of plasticity and "nerve" to be achieved in mixing, but will afford a continuous mixing method with attendant improvement in uniformity, power consumption and capacity. It has been indicated that the work done by the Stacomizer may well facilitate such operations as the preparation of rubber for cements, wet compounding *(9)*, the dispersion of co-precipitated masterbatches *(8)*, and the treatment of scrap with reclaiming oils.

The investigation of Stacomizer rubber processing is in its early stages, and much additional work remains to be done before a conclusive evaluation can be made. All of the rubber work to date has been done on a laboratory size machine (Fig. 2), but experience with other products indicates that further substantial improvements in performance are to be expected in "scaling up" to a larger, plant-size unit.

Summary

Preliminary findings show that further intensive investigation of the Stacomizer is well justified in several potential applications in the rubber industry. The new fundamental mechanical principle of this machine enables it to accept wet polymer and apply hitherto unobtainable pressures at high capacity. This permits unusually good removal of moisture and electrolyte before drying and also appears to enhance the properties of the resulting vulcanizates. Processing is characterized by virtual absence of shear, low power input, tremendous pressure and ease of temperature control. These advantages also indicate eventual application to the problems of polymer breakdown, treatment of co-coagulated masterbatches, reclaiming operations and continuous mixing.

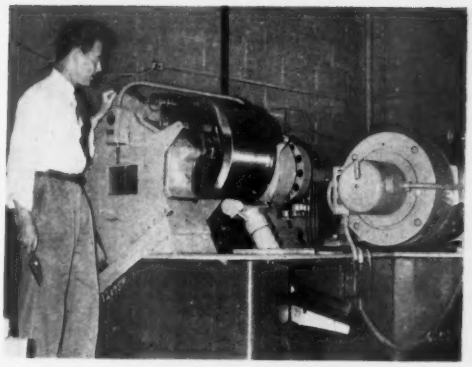

FIG. 2—Laboratory size Stacomizer.

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Struthers Wells Intensive Mixers, Dispersion Machines, Mixing Machines and Kneading Machines. (Bulletin No. T-452). Mixer Division, Struthers Wells Corp., Titusville, Penna. 8½ x 11 in. 4 pp.

Intensive mixers, dispersion machines, mixing machines and kneading machines manufactured by the company are described and illustrated in this bulletin. Featured is the Struthers Wells Intensive Mixer. In addition to descriptive data, the bulletin includes a chart which gives capacity, series number, rotor rpm and horsepower for the 19 standard sizes of intensive mixers. Thirteen standard sizes for dispersion machines, mixing machines and kneading machines also are considered in the bulletin. These range in working capacity from 1 through 1,000 gallons.

NEW GOODRICH BELT PLANT FEATURES FLOW PROCESSING

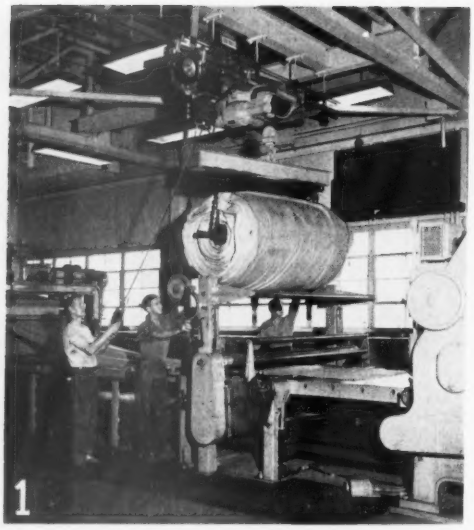


Fig. 1—An important step in the manufacture of the belting is the loading of the belt building machine. As shown above, a self-propelled hoist moves a roll of liner cloth from storage racks to a let-off point on the machine. Then, a hoist quickly and accurately lowers the roll to its supports on the machine. A three-man crew guides and locks the roll into place.

THE new two-story belt plant of the B. F. Goodrich Co. at Akron, Ohio, features a flow pattern of production capable of meeting all demands that might be made on it now or for a long time to come. The new plant is so designed that raw materials enter the unit from a processing area in an adjoining building. The various materials first enter the long second-floor area, and then proceed through the various stages of production.

Belting in production moves through the plant on an intricate monorail and overhead crane system. When the belting reaches the end of the second floor, it drops through the floor to the first level and doubles back following a U-shaped pattern. When the belt leaves the second floor it is in an uncured state. The finished belt is shipped from a point almost directly under the place where the raw materials first entered the plant.

The accompanying flow chart illustrates the different processes involved in the manufacture of the belting. It will be seen that the operation starts at the right-hand side of the second floor, drops to the first floor on the left, and continues through the plant to the shipment point.

The photographs depict various stages in the production of the belting. While all belts pass through the same process, the manufacturing and handling equipment is designed around belt size and weight. The lighter belts are processed in the middle and third bays, while the heaviest belts are processed in the first bay.

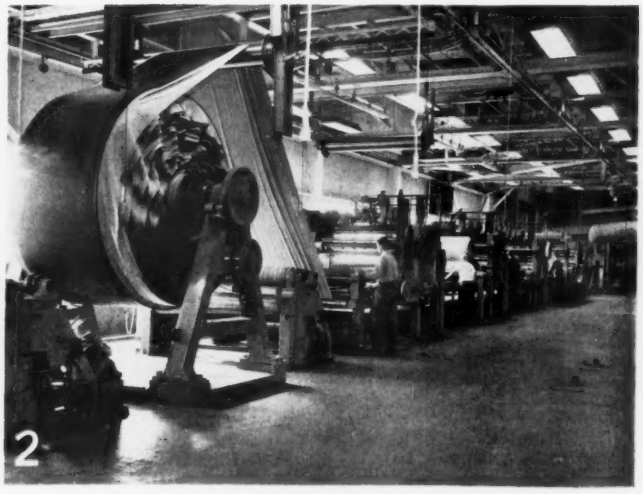
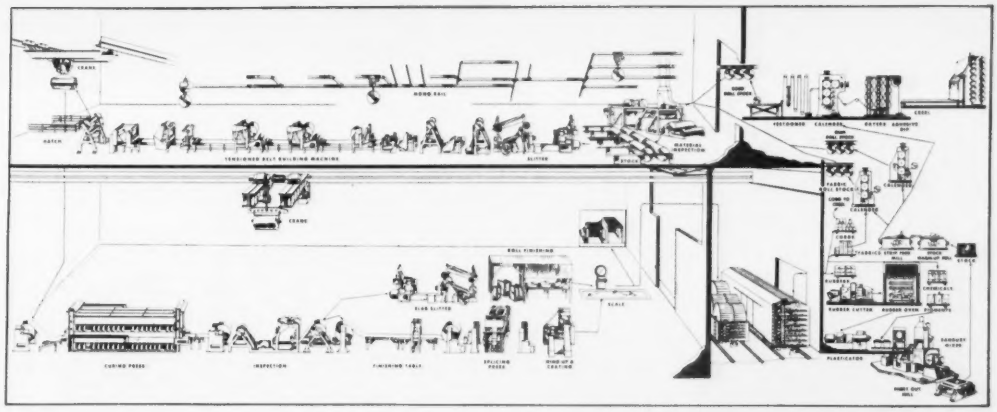


Fig. 2—This photograph shows a view of the tensioned belt building machine. The monorail running overhead will carry the belt to the slitter for the next step in the manufacturing operation.



It will be seen from the flow chart above that the operation starts at the right-hand side of the second floor, and after dropping to the first floor continues the U-shaped pattern to the shipping point.

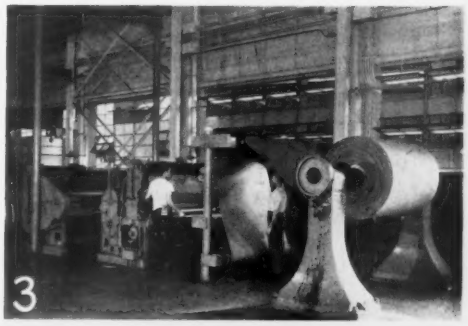


Fig. 3—Operators are shown here examining the belt as it moves from the curing press. In the next operation it will proceed to the slab slitters and the finishing tables.

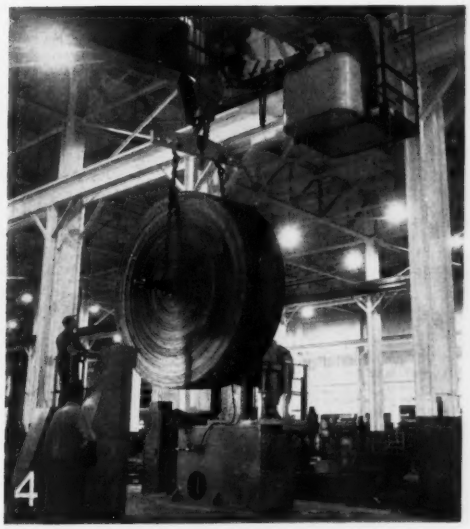


Fig. 4—A finished roll of rubberized conveyor belting is shown here. By means of the overhead crane, the roll will be transported to the shipping bay where it will be crated and otherwise prepared for shipment.

Fig. 5—An L-shaped crane door speeds the loading of railroad cars. The lower door rolls to the right to permit the crane load to pass through, while the upper wall portion swings up to clear the crane run.

COTTONSEED MEAL as a Tire Cord-to-Rubber Adhesive

By WADE H. HOFFMAN, Jr., and JETT C. ARTHUR, Jr.

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On a laboratory scale, solvent-extracted cottonseed meal compares favorably with casein in dips for effecting the adhesion of tire cord-to-rubber. The viscosities of dips containing cottonseed meal are higher than those of dips containing casein; however, the values are within a usable range for the application of dip to the cord.

INVESTIGATIONS at this laboratory have shown that proteins contained in oil-free cottonseed meals are natural adhesives and that they can be used in the formulation of plywood glues *(3, 4, 5)*. The purpose of this report is to evaluate solvent-extracted cottonseed meal, a product containing more than 50% protein, as an adhesive for bonding cotton and rayon tire cord to rubber.

The scope of the investigation has been to determine a satisfactory method of dispersing cottonseed meal to yield a good adhesive of the cord-to-rubber type and to compare the adhesive properties of cottonseed meal with those of casein, a natural adhesive which has been used as an agent for bonding cord-to-rubber. No attempt has been made to develop a complete formulation using cottonseed meal which could be offered to industry.

Experimental

Materials: Hexane-extracted cottonseed meal, prepared at this laboratory, containing about 56% protein and 1.5% lipid, was used as a bonding agent. The casein used as a bonding agent was a high grade commercial product which contained more than 90% protein.

Samples of creamed natural latex (63% solids), GR-S Type II rubber (27% solids), and rubber carcass stocks were obtained from a commercial tire and rubber company. This is of interest, since it developed that the different carcass stocks caused greater variations in the adhesive values than did a change of bonding agent in the dip preparation.

The cotton tire cord used was of 16/4/3 construction, processed at this laboratory from Stoneville 2B variety, 1-1/16-inch staple length cotton. The rayon cord used was 1100/2 commercial tire cord.

Equipment: A small-scale dipping unit (Fig. 1) was constructed and used for applying the dip to a single cord. The unit consisted of a tension control attachment *(2)*, a dipping bath, a drying chamber, and a collecting reel which pulled the cord through the unit. The drying chamber was heated with infra-red lamps which raised the air temperature to about 200° F.

Test Methods: The cord-to-rubber adhesion value is expressed in pounds as measured by the H-test and represents the force necessary to pull a single cord out of a block of rubber in which it has been vulcanized *(6)*. The method of vulcanizing the test samples was that described by Lyons, Nelson, and Conrad *(6)*. A pressure of 250 psi was applied to the mold for 30 minutes while it was at a temperature of 287° F. Each value of adhesion reported is the average of 15 to 18 values.

Preparation of Dip: The preparation of a protein-rubber dip consists essentially of preparing a protein dispersion and then mixing it with a rubber latex sol. Due to the different solubility characteristics of cottonseed proteins *(1)*, sodium hydroxide was used as the dispersing agent in preparing cottonseed meal dispersions. In this investigation aqueous dispersions of casein were made using borax as the dispersing agent.

TABLE I—EFFECT OF pH OF COTTONSEED MEAL-LATEX DIP ON COTTON CORD-TO-RUBBER ADHESION

	Dip Properties *		Cord	
pH	NaOH/protein (%)	Viscosity (centipoise)	Solids pick-up (%)	Adhesive value at 275° F. (lbs.)
9.6	0	36	11.7	6.8
9.8	4	13	14.0	8.0
10.2	8	18	11.5	8.4
11.1	12	18	12.4	9.1
11.6	16	20	10.6	8.8
12.3	20	20	11.9	9.0

* The ratio of cottonseed protein to latex was 20%; solids, 20%.

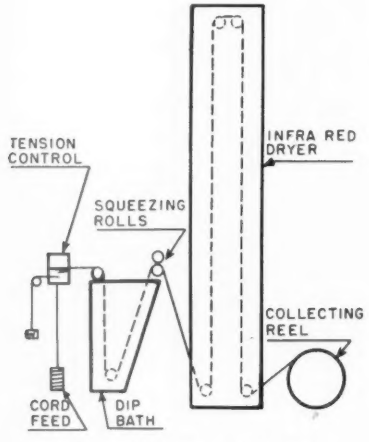

FIG. 1—Tire cord dipping unit.

TABLE II—EFFECT OF RATIO OF COTTONSEED MEAL TO LATEX IN DIP ON COTTON CORD-TO-RUBBER ADHESION

Protein/latex (%)	Dip Properties * pH	Dip Properties * Viscosity (centipoise)	Cord Solids pick-up (%)	Cord Adhesive value at 275° F. (lbs.)
0	10.0	2.5	9.0	5.0
15	10.5	11	10.6	7.6
20	10.2	18	11.5	8.4
25	10.5	43	10.9	8.4

* The ratio of sodium hydroxide to protein was 8%; solids, 20%.

TABLE III—EFFECT OF TOTAL SOLIDS OF COTTONSEED MEAL-LATEX DIP ON COTTON CORD-TO-RUBBER ADHESION

Total solids (%)	Dip Properties * pH	Dip Properties * Viscosity (centipoise)	Cord Solids pick-up (%)	Cord Adhesive value at 275° F. (lbs.)
15.0	10.5	5.5	6.9	7.4
20.7	10.2	18	11.5	8.4
27.9	10.5	96	18.3	8.6

* The ratio of sodium hydroxide to protein was 8%; cottonseed protein to latex, 20%.

The compositions of the dips are shown in the accompanying tables.

Results

The effect of pH of cottonseed meal-latex dip on cotton cord-to-rubber adhesion is shown in Table I. The maximum adhesive value at 275° F. occurred between pH 10.2 and pH 11.1, equivalent to a concentration of sodium hydroxide of 8 to 12% based on the 56% protein content of the cottonseed meal. For concentrations of sodium hydroxide between 12 and 20%, there were no differences in the adhesive values. The viscosities of the dips and the solids pick-up of the cord are relatively constant over the pH range from 9.6 to 12.3.

The effect of the ratio of cottonseed protein to latex in the dip on cotton cord-to-rubber adhesion is shown in Table II. The maximum adhesive value at 275° F. of the cotton cord-to-rubber bond occurred at a protein/latex ratio equal to or greater than 20/100. Increasing the ratio to 25/100 did not change the value of adhesion. The viscosities of the dips reported in the table are within a workable range. With the equipment used, variations in viscosities of the dips from 2.5 to 43 centipoises did not appreciably affect the solids pick-up on cotton cord.

The effect of the total solids of the cottonseed meal-latex dip on cotton cord-to-rubber adhesion is shown in Table III. The maximum adhesive value at 275° F. of the bond occurred at a total solids content equal to or greater than 20%. The viscosity of the dip containing 27.9% of total solids is probably about a maximum usable value. The solids pick-up of the dipped cord was affected by the total solids of the dip. However, an increase in solids pick-up from 11.5 to 18.3% did not markedly affect the value of adhesion.

When GR-S Type II rubber was used in the place of latex, the adhesion was comparable although slightly less. The variation in adhesions for similar dips with the two rubber carcass stocks used was also noted. However, in each instance the cotton cord-to-rubber adhesion for untreated cord with a given carcass stock was reported, so that comparisons can be made.

The effect of testing temperature on adhesion is shown in Table IV. A complete breakdown of the bond occurs in the range 275° to 300° F. The differences between the adhesive values of the bonds containing cottonseed meal and those containing casein are not regarded as significant.

The machine operating conditions did not affect the adhesion, if the application of the dip to the cord was uniform. The processing conditions were investigated as follows: (1) The tension on the cord in the dip bath was varied from 0 to 100 grams; the tension going into the dryer, from 0.2 to 0.7 pound; and the tension coming out of the dryer, from 0.4 to 1.6 pounds; (2) The speed of processing the cord was varied from 45 to 300 inches per minute; (3) The squeeze roll pressure was varied from 0 to 4 pounds.

The effects of type of cord and type of treatment on cord-to-rubber adhesion are compared in Table V. The adhesive values of the bonds formed with both cotton and rayon cords using cottonseed meal in the dips (on an equivalent protein basis with casein) compare with those formed using casein. The use of rayon

TABLE IV—EFFECT OF TESTING TEMPERATURE ON COTTON TIRE CORD-TO-RUBBER ADHESION

Testing Temperature (° F.)	Adhesive Value (Lbs.) Untreated cord	Cord dipped in cottonseed meal-latex sol *	Cord dipped in casein-latex sol †
75	13.4	21.3	20.1
100	12.9	18.2	17.7
125	11.0	18.0	15.7
150	8.4	15.5	13.6
175	8.1	15.1	12.8
200	6.7	13.0	11.7
225	6.2	12.0	11.7
250	5.6	12.6	11.0
275	5.2	10.9	8.3
300	0.0	0.0	0.0

* Dip properties: pH 11.6; cottonseed protein/latex, 20%; solids, 21.2%; viscosity, 21 centipoises. Cord: solids pick-up, 10.6%.
† Dip properties: pH 8.9; casein/latex, 20%; solids, 23.6%; viscosity, 6 centipoises. Cord: solids pick-up, 10.8%.

TABLE V—EFFECTS OF TYPE OF CORD AND TREATMENT ON CORD-TO-RUBBER ADHESION

Tire Cord and Treatment *	Adhesive Value (Lbs.) at 75° F.	Adhesive Value (Lbs.) at 275° F.
Cotton, Stoneville 2B, 16/4/3		
Untreated	13.4	4.9
Cottonseed meal-latex dipped	21.3	9.0
Casein-latex dipped	20.1	8.9
Rayon, 1100/2		
Untreated	2.0	0.0
Cottonseed meal-latex dipped	8.0	4.7
Casein-latex dipped	8.6	5.0
From Lyons, Nelson, and Conrad *(6)*†		
Cotton, Stoneville 2B, 23/5/3		
Untreated	13.9	5.9
Dipped with commercial adhesive	——	8.6
Rayon, 1100/2		
Untreated	2.5	1.7
Dipped with commercial adhesive	9.3	4.2

* Cottonseed meal-latex and casein-latex dips have the same properties as those listed in Table IV.
† The data were calculated from the characteristic adhesions and cord gages listed in Table XVIII of reference *(6)*.

cord resulted in a lowering of the adhesive value of the bond as compared to the adhesive value of a bond containing cotton cord. However, if the gages of the two cords are considered, the differences in adhesive values of the bond are not so large.

The data of Lyons, Nelson, and Conrad *(6)* are included in Table V for comparison. Their results were obtained with different rubber carcass stocks and other materials, and the only comparison which can be made is that the adhesive values of bonds containing cottonseed meal and casein reported here are of the same order of magnitude as those reported by the other workers.

ACKNOWLEDGMENT

The authors wish to thank the Cotton Mechanical Processing Division for the cotton cord and for the design of the dipping unit and the Engineering and Development Division for the solvent-extracted cottonseed meal used in this investigation, and the Armstrong Tire and Rubber Company, Natchez, Mississippi, for the rubber carcass stock and latex and GR-S sols.

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New Method of Foaming Vinylite Plastisol

A NEW and economical method of foaming Vinylite plastisol produces material similar to foam rubber but with more flame resistance, chemical resistance and ease of fabrication. Because the new foam is made with inexpensive equipment in low-cost molds and can laminate directly to textiles and films, its cost is comparable with foam rubber in fabricated form, according to the manufacturer.

Developed by Dr. Edmund H. Schwencke of the Elastomer Chemical Corporation, Nutley, N. J., together with research by the Bakelite Company, this process produces the new foam by expanding a special compound, based on Vinylite plastisol resins, that cures at low temperatures. The foamed material enjoys the important advantages of flame resistance, flexibility, light weight, and resistance to aging, moisture, abrasion, tearing, alkalies, acids and most chemicals. Because of these inherent properties the new foam does not oxidize, dry out or harden, has high resilience and elasticity, is practically odorless and can be made in any color. The foaming process is completed in three simple stages at low temperatures and pressures, eliminating the use of expensive high-pressure equipment.

Laminated to natural and synthetic fiber textiles or Vinylite plastic film and sheeting, the springy foam makes an excellent cushion backing for furniture upholstery. Laminates of more than an inch in thickness are easily coated and cured in place on any width of fabric or film. Cast in an inexpensive, open mold without coring, this foam also produces resilient seat cushions three or more inches deep. This versatile foam is easily molded in intricate shapes, in sheets of any width and thickness, and in tubes or blocks up to eight inches or more in thickness. The material can be die cut to any shape or sliced as thin as 1/32nds of an inch. Foam laminates on Vinylite plastic film may also be heat-sealed or embossed electronically or with heated rollers.

This unique method of foaming Vinylite plastisol is easy to control and at no point is it a critical chemical or technical process. Both the special compound based on Vinylite plastisol resins and the expanded material are stable. Compound, gas pressure and temperature of cure may be varied within fairly wide limits. The density of the foam can thus be varied from 12 to 18 pounds per cubic foot, and the expansion from 400 to 800 per cent by simply varying the formulation or foaming process. Similarly almost any degree of hardness or softness can be obtained as well as any hue or shade of color.

The three stages in foaming Vinylite plastisol include: (1) Expanding the formulation with a gas in a pressure vessel; (2) Discharging the expanded material into an open mold; (3) Curing it in an ordinary oven. The liquid formulation based on Vinylite plastisol resins and prepared by the Elastomer Chemical Corporation to cure at low temperatures, is first poured into a pressure cylinder. Then a gas under about 400 pounds pressure is introduced to expand the liquid compound. Sealed off at this pressure, the cylinder is vigorously agitated until the gas is partially absorbed into the plastisol. Forced out by the gas pressure, the expanded material now has a consistency and flow similar to thick whipped cream.

Poured into lightweight, open molds, the expanded foam settles evenly into every mold cavity. This expanded material retains its expansion in open air for as long as 90 minutes before curing. Temperatures between 225° and 275° F., available in an ordinary oven, are used for curing. A tough skin that resists tearing and abrasion forms on all outer surfaces of the molded object as it cures.

A simple pressure cylinder with a hand crank, costing less than $200, is all the equipment needed to expand a 25-pound batch of the new foam. Because the equipment is simple and the process non-critical, the new foam is easily adaptable to large volume production and mechanization.

Application of Precipitated Calcium Carbonates in Reinforced Plastics. (Bulletin No. 7). Technical Service Division, Diamond Alkali Co., 300 Union Commerce Building, Cleveland 14, Ohio. 8½ x 11 in. 21 pp.

This bulletin supersedes an earlier company publication covering the same subject. The new edition, in its enlarged and revised form, concisely reviews the use of two Diamond precipitated calcium carbonates (Surfex MM and Kalite) in fabricating reinforced polyester resins. The discussion particularly points up nine specific advantages these materials bring to this important phase of plastics processing. Also summarized are laboratory tests used to evaluate the performance of these materials. Detailed results of these specific analyses are presented in a series of tables. Other tabular charts give the weighing and cost factors of filled reinforced polyesters, and specifications of both Surfex MM and Kalite.

Compounding Reclaim with New Elastomers for High Quality at Low Cost

By M. F. TORRENCE and H. G. SCHWARTZ

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TOO often reclaim is omitted from consideration as a basic elastomer and is thought of merely as a diluent for other rubbers. Yet whole tire and other reclaims have properties superior to those obtained with some of the more widely used elastomers. Among those properties are its resistance to deterioration caused by either heat or ozone. Furthermore, and most important, it is low in cost. Like all other materials it has its limitations and like all elastomers it must be compounded to develop its maximum qualities.

It is the purpose of this paper to report the effect of compounding reclaims with other elastomers. This study has revealed some unexpected differences between the effects of various new elastomers. It has also shown that the addition of small amounts of a new elastomer to reclaim may adversely affect certain properties of a compound, whereas larger amounts would have a highly beneficial effect.

As a control, the all-reclaim stock shown in Table I was used. As will be seen from the data to follow, this stock has an original tensile strength of 1050 pounds practically all of which is retained after aging for 4 days at 100° C., and it is far superior to a GR-S stock in its resistance to ozone cracking. There are many applications where this stock would be completely adequate. Of course, there are many more applications for this stock where an improvement in quality, even an improvement in its already good ozone resistance, is demanded.

Starting with this stock, the effect of replacing portions of the reclaim with new elastomer was investigated. Replacements were made using GR-S-100 (LTP), natural rubber and Neoprene Type GN-A for part of the reclaim hydrocarbon. The volume of added softener and SRF carbon black on the total rubber hydrocarbon content was held constant. However, the non-rubber portion of the reclaim was disregarded and, as a result, the total volume loading decreased as reclaim was replaced. This places the stocks rich in reclaim at some disadvantage.

Table II shows the different ratios of new elastomer to whole tire reclaim which were studied. All of the elastomers except neoprene have essentially the same specific gravity as the rubber hydrocarbon present in whole tire reclaim; so the weight of filler and softener used was identical with that shown in Table I. With neoprene, adjustments in the weights of SRF black and oil were made so that the volume loading remained constant.

Of course, the curing aids such as sulfur and accelerator were adjusted to give the proper states of cure. A range of cures was run at 281° F. and it was noted that the 60-minute cures gave close to optimum properties in all cases. Therefore, only the results obtained on samples so cured are reported.

The data plotted in Figure 1 show that the addition of any of the three new elastomers increases the original tensile strength over the 1050 psi of the all-reclaim stock. However, it is evident that GR-S is not very efficient in

Note: This is Contribution No. 93 from the DuPont Rubber Laboratory. The subject matter of this paper was presented by E. R. Bridgwater, Sales Director, DuPont Rubber Chemicals Division, in the form of an address at the International Meeting of the Buffalo and Ontario Rubber Groups, Niagara Falls, Ont., Canada, May 1-6, 1952.

TABLE I—ALL-RECLAIM CONTROL STOCK

(Parts by Weight)

Whole Tire Reclaim	200.0
SRF Carbon Black	60.0
Softener	14.0
Zinc Oxide	3.0
Stearic Acid	2.0
Neozone A	1.0
MBTS	0.8
DOTG	0.2
Retarder W	0.5
Sulfur	3.0

TABLE II—RATIOS OF NEW ELASTOMER TO WHOLE TIRE RECLAIM STUDIED

(Parts by Weight)

Whole Tire Reclaim	200	175.0	150	100	50	25.0	0
New Elastomer	0	12.5	25	50	75	87.5	100

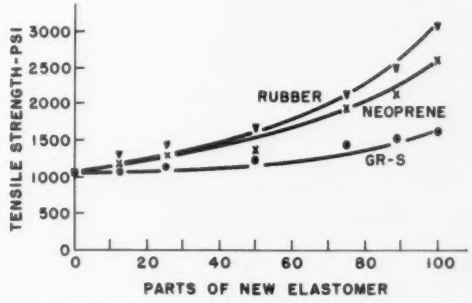

FIG. 1—New elastomer vs. tensile strength.

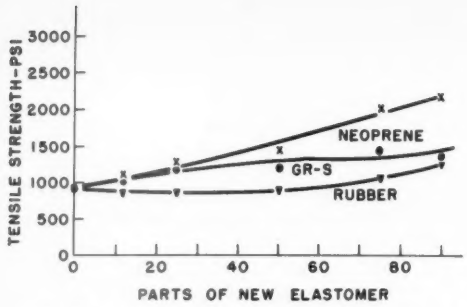

FIG. 2—New elastomer vs. tensile strength after aging 4 days at 100° C.

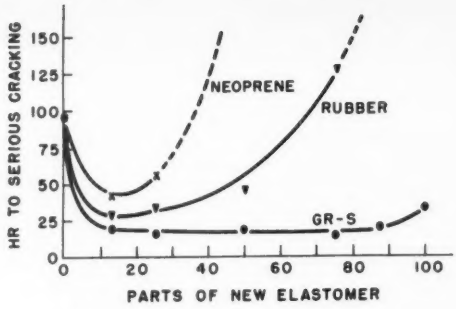

FIG. 4—New elastomer vs. ozone resistance.

this respect since the increase in tensile strength is insignificant until at least 50 parts of GR-S have been added. Both neoprene and natural rubber show a considerable improvement in tensile strength even when used in low concentrations. Below 50 parts of new elastomer the two are approximately equal in efficiency, although cost factors favor natural rubber.

For many applications tensile strength, after a period of aging, is far more indicative of quality than is the original tensile strength. The data plotted in Figure 2 show the effect of adding new elastomer to the base reclaim stock on the tensile strength obtained after aging for 4 days at 100° C. It is readily apparent that except for the stocks having 75 or more parts of new elastomer, the substitution of natural rubber for reclaim has not resulted in any improvement. Both GR-S and neoprene do have a decided effect and neoprene appears to be the more effective elastomer. The stock containing 10 parts of neoprene has a higher tensile strength after aging than the all-reclaim stock had before aging (compare Figure 1), and the stock containing 50 parts of neoprene has a higher tensile strength after this period of aging than any of the stocks containing less than 40 parts of natural rubber had before aging.

The elongation at break of many compounds is so reduced by 4 days' exposure to 100° C. that the serviceability of the stock is destroyed. Here, again, as shown by the data plotted in Figure 3, the addition of either neoprene or GR-S even in low concentrations results in a marked improvement in quality. The loss in elongation shown by the stocks rich in GR-S is probably associated with the well-known susceptibility of GR-S compounds to cross-link under this type of an aging test. The stocks containing neoprene are outstanding and the use of a blend containing 50 parts results in a compound which is equal to, or better than, any other except those richer in neoprene.

The ozone and weather resistance of elastomeric compounds probably have received more attention during the last few years than any other single property. With this increased interest it has become apparent that even the acknowleged excellence of an all-reclaim stock does not offer sufficient resistance to this type of deterioration. The data plotted in Figure 4 show the effect on this property of adding various quantities of the other elastomers to the base reclaim stock. In carrying out the experimental work, test specimens 1-inch by 2-inch were bent double around a $\frac{1}{8}$-inch mandrel and the stocks exposed in a static condition at room temperature to a concentration of 50 parts of ozone per hundred million. The extent of attack was evaluated by determining the time required for serious cracking to take place. Several facts are readily apparent from a consideration of the graphs shown in Figure 4, as follows:

1. The addition of small amounts of any of the elastomers studied decreases the ozone resistance of the reclaim stock.

2. The all-reclaim stock is superior to its all-GR-S counterpart.

3. Probably due to the fact that present-day reclaims contain a large percentage of GR-S, the all-reclaim stock is not so resistant to ozone attack as the all-natural rubber stock.

4. The addition of more than 25 parts of neoprene

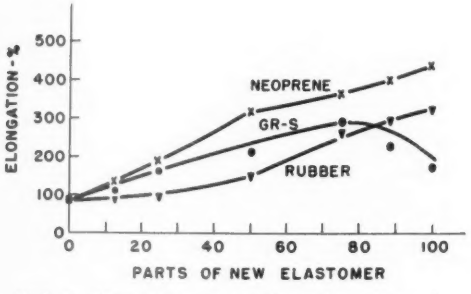

FIG. 3—New elastomer vs. elongation after aging 4 days at 100° C.

TABLE III—RECLAIM-NEOPRENE STOCK

(Parts by Weight)

Neoprene Type GN-A	50.0
Whole Tire Reclaim	100.0
Neozone A	1.0
SRF Carbon Black	45.0
Zinc Oxide	3.0
Magnesium Oxide	2.0
Stearic Acid	2.0
Light Process Oil	8.0
Para Flux	7.0
MBTS	2.0
Petrolatum	2.0

Table IV—Resistance of Elastomers to Flexing in Sunlight

Elastomer	Days to Visible Cracking	Condition After 13 Days
Neoprene	>13	No Cracks
Natural Rubber	9	Bad Cracking
GR-S	6	Very Bad Cracking
Whole Tire Reclaim	7	Very Bad Cracking
Reclaim-Neoprene Blend	13	Slight Cracking

to the reclaim stock increases the resistance to ozone attack so markedly that severe cracking did not take place even after 150 hours' exposure. In fact, the stocks containing 50 or more parts of neoprene did not show any cracking after this period of exposure.

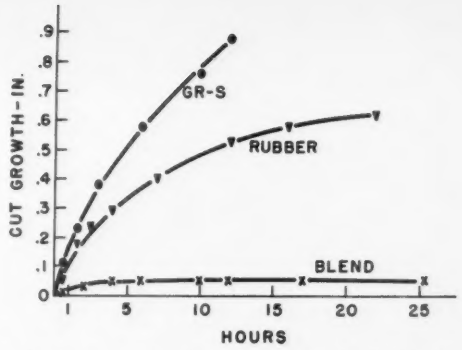

FIG. 5—Cut growth data (obtained on a De Mattia type flexing machine).

Comparison of Properties

The experiments already described have indicated that stocks in which half of the elastomer content is obtained from neoprene and half from whole tire reclaim possess very desirable qualities. Such stocks are approximately equal in cost to similar stocks in which the elastomer content is derived entirely from GR-S and, depending upon the price ascribed to natural rubber, are either equal in cost or somewhat cheaper than stocks derived entirely from natural rubber. In the balance of this paper a comparison will be made of some of the properties of this reclaim-neoprene blend with those of an all-rubber or an all-GR-S vulcanizate. These tests were carried out in a stock which was somewhat better balanced with respect to filler, softener, curatives and acceleration than the formula employed in the preliminary experiments.

In order to successfully compound stocks containing mixtures of neoprene and reclaim, it is necessary to bear in mind the fundamental differences in the methods of curing these two elastomers. Neoprene stocks are normally cured with mixtures of zinc oxide and magnesium oxide. They are strongly activated by any residual zinc chloride or alkali in the reclaim and, on the other hand, are retarded by the thiazole accelerators commonly used in curing reclaims. The thiuram content of the neoprene is also available for curing the reclaim hydrocarbon. In fact, it is so effective in this respect that in stocks containing 50 or more parts of neoprene, it is usually unnecessary to add any sulfur to the mix to produce a satisfactory vulcanizate under normal curing conditions. The addition of sulfur to such mixes has the following effects:

1. It decreases Mooney scorch time.
2. It decreases resistance to cut growth.
3. It decreases ozone resistance very slightly.
4. It has but little effect upon modulus, hardness and tensile strength.
5. It decreases heat build-up very markedly.

The addition of benzothiazyl disulfide provides a satisfactory method of controlling processability and experience has shown that depending upon the particular reclaim being used, the addition of from 1 to 4 parts of MBTS results in stocks which should process with no difficulty under normal factory conditions. The reclaim-neoprene stock shown in Table III, designed to give good processability combined with high resistance to cut growth, good ozone and weather resistance, and good resistance to normal aging, was employed in the remainder of the tests described.

Resistance to flexing in sunlight is closely related to resistance to ozone cracking and for many applications is an excellent criterion of quality. Fabric-backed samples ½-inch wide were continually flexed outdoors in Florida. The time for visible cracking to develop and the condition of the samples at the end of 13 days are shown in Table IV. For comparison, data on similar stocks based on all-GR-S, all-natural rubber, all-neoprene and all-whole tire reclaim are included.

These data indicate that for this type of exposure, the blend of neoprene and reclaim is far more serviceable than its all-natural rubber or all-GR-S counterpart. Although it is inferior to the all-neoprene compound, its resistance to this type of deterioration is undoubtedly adequate for many types of service and it is obtained far more economically than through the use of an all-neoprene stock, which has been the only method previously available to compounders.

Reclaim stocks have never been considered adequate for services in which resistance to cut growth is important. Even mixtures of GR-S or natural rubber with reclaim are generally too poor in this respect to warrant consideration. The data plotted in Figure 5 were obtained on a DeMattia type flexing machine using an initial cut of 1/10-inch. It will be seen from the curve that the use of 50 parts of neoprene with the reclaim has so improved the cut growth resistance that the blend is far superior to either natural rubber or GR-S. This indicates that such stocks should find wide usage in applications where this quality is required.

Although low heat build-up is a quality which is not frequently demanded in high reclaim stocks, there are some applications where its possession would allow

Table V—Comparison of Heat Build-Up of Elastomers after 20 Minutes on a Goodrich Flexometer

Elastomer	Heat Build-Up, ° C.
Natural Rubber	52
Neoprene	65
GR-S	103
Blend (1% sulfur added)	97

an expansion of its use. This would be true particularly if it could be combined with resistance to cut growth. The data in Table V compare the heat build-up of these stocks as determined after 20 minutes on a Goodrich Flexometer using an initial stress of 150 psi on which is imposed a 3/16-inch stroke and a frequency of 1800 cycles per minute.

It will be noted that the composition of the reclaim-neoprene stock tested differed from that shown in Table III by having 1% added sulfur. As discussed above, this variation is desirable in compounding for lowest heat build-up. The data show that the blend is inferior to the natural rubber or the neoprene stocks but is slightly superior to the all-GR-S control.

In view of the excellent properties of the stock based on a blend of reclaim with 50 parts of Neoprene Type GN-A, it is obvious that it could be further extended with filler and softener and still retain sufficient quality for many applications. The data in Table VI show a comparison for the stock previously described and a similar one in which the SRF content was increased to 70 parts and the softener content to 26 parts.

The extended stock has a higher modulus and a lower elongation at break than the original. Its ozone resistance and resistance to outdoor flexing have not been impaired noticeably. Although, as would be expected, its cut growth resistance has been decreased, it is still superior in this respect to the all-GR-S or the all-natural rubber stock containing the lower loading.

TABLE VI—COMPARISON OF STOCKS WITH VARYING CONTENTS OF SRF BLACK AND SOFTENER

Property	SRF Black-45 Softener -19	SRF Black-70 Softener -26
Stress at 300% Elongation (psi)	975	1275
Tensile Strength (psi)	1350	1300
Elongation at Break (%)	410	300
Ozone Resistance (Hours to Serious Cracking)	>150	>150
Cut Growth at 10 Hours (in.)	0.075	0.225
Outdoor Flexing (Days to Visible Cracking)	13	14
After Aging 4 Days @ 100° C.		
Tensile Strength (psi)	1375	1275
Elongation at Break (%)	340	200

Summary

A study has been made of the effects of blending natural rubber, GR-S (LTP) and Neoprene Type GN-A with whole tire reclaim. As judged by the over-all qualities of the resulting vulcanizates, Neoprene Type GN-A appears to be the most satisfactory elastomer to blend with reclaim. Such blends show an outstanding increase in resistance to ozone cracking, weathering and cut growth, a substantial increase in tensile strength, particularly after a period of accelerated aging, and a slight decrease in heat build-up. Blends in which half of the elastomer content is derived from neoprene appear to be the most attractive and such blends can be extended with additional black and oil without a significant loss in properties.

Additional Reports of Avoidable Accidents in Rubber Factories

SEVERAL additional reports of avoidable accidents which have occurred in recent months in rubber factories, as reported by the Rubber Section of the National Safety Council, include the following:

Slab-Off Unit: A Banbury operator had come down to the main floor because of a change in recipes and batch run. While waiting for the mill man to clear his mills, he noticed a piece of rubber wrapped around the rolls on the slab-off unit which was not running. Without taking the precaution to pull the safety, he attempted to remove the offending rubber.

Meanwhile, the laydown man still had some slabs of rubber hanging on the slab cooling conveyor at a point where they could not be reached to be removed. Seeing the mill man and not knowing that the Banbury operator had come down to the main floor and was working on the slab cutter, he started up the cutter and the conveyor so that he could remove the slabs of rubber.

As the conveyor started, the Banbury operator's hand became caught between the end of the belt and the hold-down hooks at the discharge end of the slab cutter. The injured man screamed for the machine to be shut off and the laydown man pulled the safety. The injured man was then extricated.

The prevention of a recurrence of this type of accident is clearly a matter of instructing all employees working in and around power-driven equipment to be sure that all employees are in the clear before starting up. Further, emphasis must be placed on the importance of shutting off all power to machines before starting to work on them in order to prevent unexpected starting of equipment.

Conveyor Accident: Two maintenance employees were requested to remove rubber from around a pulley of an oscillating belt conveyor which feeds rubber to the top bank of a 4-roll calender. One man climbed to the top of the calender which was not in operation and the other was stationed at the "stop and go" conveyor button. The man at the top of the calender instructed the man down below to start the conveyor up after he had cut the rubber from around the pulley. He made this request in order to determine how the belt ran. The man below followed the instructions and when he saw his co-worker slip and scream, he immediately shut the conveyor off.

The man at the top of the conveyor had apparently lost his balance when he shifted his position to watch this conveyor belt run, and as a result, threw his right hand in between the oscillating feed conveyor and the conveyor framework at the moment that the oscillating portion of the conveyor came back against the frame.

Maintenance employees doing overhead work or not working at floor level should make doubly certain that they have secure footings even though the job is of short duration. This can be obtained only through the use of proper ladders, platforms and scaffolding.

Studies of Tire Performance at the National Bureau of Standards

MUCH new information on the tread wear, power loss, and other performance characteristics of automotive tires has resulted from an extensive investigation now under way at the U.S. National Bureau of Standards. This program, under the direction of Dr. R. D. Stiehler of the NBS staff, has involved the development of a number of new and improved methods for predicting tire performance. Through the use of statistically planned experiments, it has been possible to determine the effects of many variables not previously isolated. The results are being utilized in the development of improved specifications for government purchase.

With the introduction of synthetic rubber in the tire industry, large variations in tire quality have developed. At present, the service life of tires of the same size but different makes ranges from 12,000 to 41,000 miles. As the Federal Government is spending over $50,000,000 this year for automobile tires, large savings should result if tires could be purchased on the basis of performance. To provide the necessary data, the Bureau in 1950 began a large-scale program for the development of tire testing methods under the sponsorship of the General Services Administration. Studies have also been undertaken for the Reconstruction Finance Corporation in connection with current efforts to develop large-size truck and bus tires made with large proportions of synthetic rubber.

Previous NBS work on tire testing methods extends back to about 1920, when investigations were first begun to develop objective procedures for evaluating tires. Because a tire is composed of other materials in addition to rubber, the tests used for rubber compounds were of little use in predicting tire performance and serviceability, and it was necessary to work out new methods of test. These early studies led to the development of the endurance test for tires which is now used in the tire industry and in the current Federal Specification for pneumatic tires. These studies also showed that the variation in power loss among different brands produced during the '20's affected fuel consumption by about 10 percent. Today, with the increasing use of synthetic rubber tires, differences in power loss are much greater, and the need for reliable methods of relating tire characteristics to operational performance has correspondingly increased.

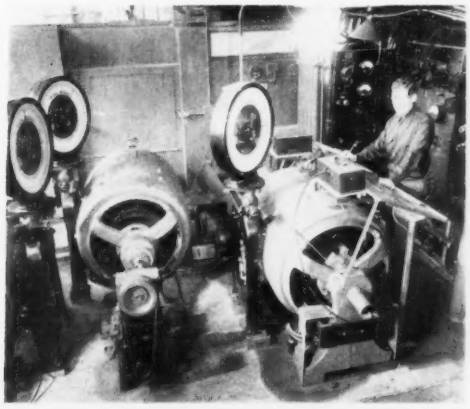

FIG. 1 — Dynamometer installation for studying power loss in tires. The tire under test is contained in the temperature-controlled enclosure in the background. The dynamometer at right measures the power required to drive the tire while the other dynamometer (left) measures the power transmitted by the tire to a steel drum.

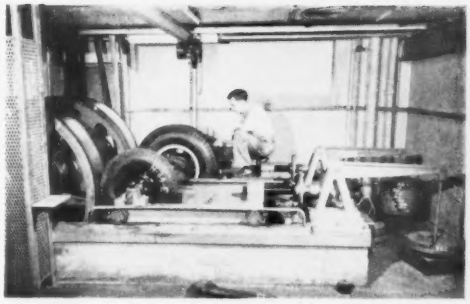

FIG. 2 — Tire endurance is measured by running the tire against a steel drum until failure occurs. Before the start of the test, cuts are made in the tread grooves. The increases in the lengths of the cuts during the test provide a measure of the tendency of cuts or cracks in the grooves to increase during service.

Power-Loss Test

Power loss in tires may be defined as that portion of the effective power produced by the engine which is dissipated in the tires as heat. This loss is disadvantageous for two reasons. First, it increases the temperature of the tire. In large tires, the temperature in service may actually become higher than the temperature at which the tire was vulcanized; as a consequence, the textile cords and the rubber rapidly deteriorate and the tire fails. The second disadvantage of a high power loss is the resultant increase in fuel consumption and in the power required of the engine.

As most passenger cars have a surplus of power, an increase in the power loss of a passenger tire is not serious except, perhaps, for the increase in fuel consumption. However, in the case of trucks, particularly tractor-trailers with as many as 18 tires, any increase in power loss in the tires may have a pronounced effect on

FIG. 3—The strength and bruise resistance of tires is determined by measuring the force and deflection at the moment a cylindrical plunger breaks through the tire.

both vehicle performance and fuel consumption. The effect is particularly noticeable on hills, where the magnitude of the power loss may determine whether shifting of gears is necessary.

Recently the Bureau has constructed a machine of special design which measures the amount of power lost in a tire when load, tire pressure, speed, tractive effort, and cornering are independently varied (Fig. 1). The machine employs two dynamometers. One measures the power required to drive the tire while the other measures the tractive effort, or the power transmitted by the tire to a steel drum. The power loss is the difference between these two measurements after correction has been made for windage and for power loss in the bearings due to friction.

Power loss is found to be influenced by both composition and design of the tire. Because of the large increase in power loss when synthetic rubber is substituted for the natural product, large truck and bus tires at present must be made in large part from natural rubber. However, efforts are being made to develop more elastic types of synthetic rubber that will have lower power loss.

Carcass Tests

The flexing of a tire in service, particularly at elevated temperatures, causes fatigue of the cords and rubber. Both composition and design affect the endurance of a tire but not necessarily in the same way as they affect power loss. Thus, while a tire with a low power loss may not have good fatigue resistance, it is generally true that a tire with a high power loss will have poor fatigue resistance. This is due to the rapid deterioration that takes place at the high running temperature, which may be considerably above the boiling point of water.

Endurance of fatigue is measured at NBS by running the tire against a steel drum continuously for several days (Fig. 2). This test is similar to the power-loss test, but an ordinary motor is used instead of a dynamometer as the motive force, and the load on the tire is increased at intervals. The process is continued to failure for research studies but is discontinued after a specified time in testing for compliance with the Federal Specification. Running temperatures may also be measured during the test. A spread in running temperature of 68°F. has been found in tests on different brands of the same size of tire.

The energy required to rupture a tire is a measure of the strength of the tire and its bruise resistance. These properties are determined in a static test in which the rupturing force and deflection are measured at the moment a cylindrical plunger with a rounded end breaks through the crown of the tire (Fig. 3). From these measurements, the energy of rupture is computed. If the test is made on a tire that has been in service or one that has undergone the endurance test, the energy for rupture may be much lower than that of an unused tire. The difference between the rupture energies before and after use can thus serve as a measure of the deterioration that has taken place. In this way it has been found that tires made with cotton cords deteriorate much faster than those made with rayon or other synthetic fibers. An accelerated aging test based on the plunger test is now under development at the Bureau.

Tread Tests

When a tire is poorly designed or when inferior tread compound is used, cuts or cracks in the tread grooves may rapidly increase with length in service and cause premature failure. This condition is determined at NBS in a test which is conducted along with the endurance test. Predetermined numbers and lengths of cuts are placed in the tread grooves before the endurance test, and the lengths of the cuts are measured after the test to determine the cut growth.

The present test for tread life is based on investigations carried out during World War II. When this

FIG. 4—Tire test fleet of the National Bureau of Standards. The three trucks (left) with six-wheel drives are used in determining the tread life of truck tires having 20-inch rims. The other four trucks, equipped with four-wheel drive, are used in testing passenger and light truck tires.

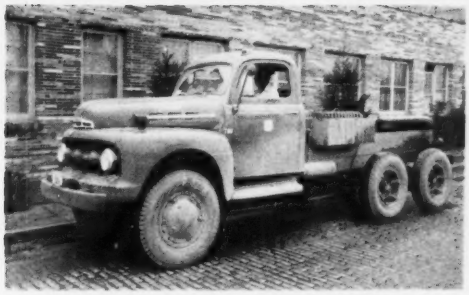

FIG. 5—Specially equipped vehicle used for road-testing truck tires with 20-inch rims. The test truck has six-wheel drive and carries an equal known weight on each axle.

country's normal supply of natural rubber was cut off, both civilian and military transportation were seriously threatened. Many substitute materials were suggested for recapping tires, and the more promising of these were submitted to the National Bureau of Standards for evaluation. As there was then no standard test for determination of tread life, a search was made for a rapid and reliable method for measuring the rate of wear of tire treads.

The tire industry has been measuring this property by the decrease in depth of the tread grooves. However, the decrease in groove depth does not take place at a constant rate but becomes slower with increasing mileage because of the change in the area of tread in contact with the roadway. Thus, to obtain reliable results from the depth measurements, it is necessary to wear the tires smooth in long and expensive road tests. At NBS it was found that, unlike the decrease in groove depth, the rate of loss in weight of a tire is essentially constant throughout the life of the tread. This finding permitted much shorter and less expensive road tests since the rate of tread wear could then be determined by differential weighings in a small fraction of the miles required by the depth method. The shorter road test which the Bureau developed as a result of this work forms the basis for the tread-life test in the interim Federal Specification now in effect.

Because of the greater number of variables involved, road tests are much more difficult to control than laboratory tests. Recently the Bureau has developed an improved method of test for tread wear which utilizes the weight-loss method but also employs a statistical design, based on the latin square, to compensate for differences in the treatment received by each tire. In this way, differences in wear due to the use of the tires on different test vehicles or in different wheel positions are taken into account. Because of changing climatic and road conditions, tires are always evaluated relative to those included in the same road test.

The Bureau is now conducting road tests with a fleet of seven trucks (Fig. 4). Four of the trucks are equipped with four-wheel drive; the others have six-wheel drive. The vehicles with four-wheel drive are used in testing passenger and light truck tires having 15- and 16-inch rims while the other trucks are used for truck tires having 20-inch rims (Fig. 5). At the end of each 500-mile period, the tires are washed, carefully weighed (Fig. 6), and transferred to a new wheel position in accordance with a 4×4 or 3×3 latin square

FIG. 6—In the tread-wear tests, the tires are accurately weighed after each 500-mile period to determine tread loss. The tire is then rotated to a new wheel position in accordance with a statistical design.

design (Table I). After each tire has been tested in each wheel position, the remaining tread design is removed by buffing to determine the total weight of tread (Fig. 7). Tread life is then calculated from this weight in combination with the rate of wear determined in the road test.

Much new information is being obtained in this way (*1*). It has been found that the tread life of different

FIG. 7—After a tire has been road-tested in each wheel position, the remaining tread is removed by buffing so that the total weight of tread may be determined. Tread life is then calculated from the tread weight together with the rate of wear determined in the road test.

brands of tires may vary by a factor of 3 or more. It has also been found (*2*) that rate of wear is influenced by both the type of rubber and the type of black used in the rubber, but that power loss is influenced more by type of rubber than by type of black.

Fundamental Studies

In addition to investigations of tire performance and the development of improved methods for evaluating tires, the Bureau is conducting other studies of a more fundamental nature that directly concern the use of rubber in transportation. For example, a broad program is under way on the dynamic properties of rubber. The viscous properties of rubber result in power loss in tires, and this energy loss is dependent on the frequency of vibration of the tire. In the Bureau's study, the viscous and elastic properties of rubber are being determined as a function of frequency so that rubber may be used more intelligently in tires and other resilient products. Other investigations, which deal with the vulcanization and stress-strain properties of rubber and the testing and grading of natural rubber, provide information of importance in controlling the quality of rubber used in tires.

One research program, of vital concern to the armed services, deals with the properties of rubber at low temperatures. Tires, belting, or other rubber articles for use in arctic regions or at high altitudes must withstand low temperatures without loss of their characteristic rubberlike properties. Yet most ordinary rubbers lose their elasticity around —50°C. (—60°F.). Pioneering investigations seeking useful low-temperature rubbers were made at NBS before World War II. These studies are now being continued on a more extensive scale, and much new, significant information has already been obtained.

TABLE I—TYPICAL LATIN SQUARE STATISTICAL DESIGN

Wheel Position	Vehicle 1	2	3	4
LF	Ab	Cc	Da	Bd
RF	Cd	Aa	Bc	Db
RR	Ba	Dd	Cb	Ac
LR	Dc	Bb	Ad	Ca

Note: Each combination of capital and small letters, which designate different rubbers and blacks, represents an individual tire. This experimental arrangement makes possible a statistical analysis of the data to determine the effects of type of rubber, carbon black, wheel position, and other variables.

LITERATURE REFERENCES

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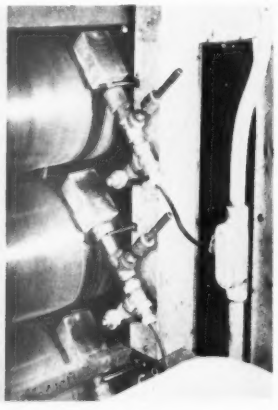
Foxboro Temperature Measuring Head

High precision in measuring roll surface temperatures, from —40° F. to +450° F., is obtained with the unique temperature measuring head developed by the Foxboro Company, Foxboro, Mass., and used in conjunction with a high speed Dynalog Recording Controller. This system furnishes mills with continuous chart records of roll



surface temperatures on such equipment as calenders, slashers, dryers and other roll-type machines. The temperature-sensitive element is a miniature resistance bulb which lightly rides on the surface of the roll. It is mounted on a block of Marinite which effectively isolates it from ambient temperatures. To avoid any scratching of the surface of the roll, the element is carried by an eel-slip faceplate, which also wipes the film of air from the roll as further protection against errors from ambient temperatures. The entire unit, with its cast aluminum housing, weighs less than one pound and is approximately the size of a wall switch box.

Tracerlab Magnetic Remote Handler

A magnetic remote handler to make possible the easy positioning and manipulation of radioactive sources, encased in ferromagnetic materials, with increased safety for radiographers, has been developed by Tracerlab, Inc., 130 High St., Boston 10, Mass. Weighing only 2 lbs., 15 ounces, the E-32 Remote Magnetic Handler is constructed of feather-light aluminum tubing and has a 12-inch, chrome-plated, flexible gooseneck leading to a short, stainless steel tip. A permanent Alnico magnet is encased in the tip and a cast aluminum grip, curved to fit the hand, is depressed to withdraw the magnet from the inner surface of the tip and thus release the source. Personnel safety from radioactivity is largely based on three inter-related factors: length of exposure, shielding and distance from the source. The new handler, the company said, makes it possible for radiographers to keep a safe distance and thus provides a higher degree of protection. The new handler is stocked in a standard 6-foot length.

The Philadelphia Division of Yale & Towne Manufacturing Co., Philadelphia 15, Penna., has developed a new, completely automatic, **mechanically-operated drum-handling attachment,** capable of carrying different size drums two-at-a-time. The unit is attached to the truck by clamping it directly on the forks, requiring a minimum of time for either installation or removal.

Compounding Neoprene W with Fine Particle Silica

By RALPH F. WOLF and F. W. GAGE

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THE use of the fine particle silica, Hi-Sil, in the compounding of Neoprene GN has already been described *(1)*. Since that time, some study has been made of the properties imparted by Hi-Sil to Neoprene W. This type of neoprene has grown in favor because of its stability in storage and good processing qualities. Consequently, the results of work done with Hi-Sil in this polymer may be of interest to compounders trying to make the best quality non-black Neoprene W stocks.

Mixing

All of the compounds described in this article were mixed in a Size B laboratory Banbury. All ingredients except the accelerators (2-MT, Retarder W, NA-22, Permalux, or sulfur) were added in the Banbury. Both zinc oxide and magnesia were added in the Banbury because of the difficulty of incorporating them into the batch quickly on an open mill.

In mixing batches which contained no high styrene resin, the Neoprene W was added to the Banbury and broken down for 2 minutes. One-third of the Hi-Sil and all of the other ingredients were added and mixed for 3 minutes. At 5 minutes, another one-third of the Hi-Sil was added. At 8 minutes, the remainder of the Hi-Sil was added. The ram was brushed at 10 minutes and the batch dumped at 12 minutes. It was placed on the mill at once, accelerators added and blended thoroughly, and sheeted off after 8 minutes. The stock was not dipped but was allowed to cool in the air.

In mixing batches which contained high styrene resin, a masterbatch of equal parts of resin and Neoprene W was mill mixed for 5 minutes at 230° to 240° F. After cooling for an hour, the required amount of masterbatch was placed in the Banbury with the remainder of the Neoprene W used in the batch.

All batches were allowed to stand for 24 hours before Mooney scorch tests were run. The scorch figures shown in the tables are the number of minutes required for the viscosity to rise 10 points above the minimum.

Acceleration

Good cures of Hi-Sil loaded Neoprene W stocks can be obtained with 2-MT and sulfur, or with Permalux or NA-22 without sulfur. Retarder W steps up these

TABLE I—EFFECT OF DIFFERENT TYPES OF ACCELERATION ON HI-SIL LOADED NEOPRENE W STOCKS

Acceleration		Mins. Cure at 307° F.	Modulus 100%	Modulus 300%	Modulus 500%	Tensile	Elong.	Hard. 0"	Hard. 30"	Tear Lbs./in.	Comp. Set Method B	Mooney Scorch
2-MT	0.5	5	60	180	510	2110	1050	57	41	320	—	37½
Sulfur	1.0	10	100	400	700	2260	920	57	44	380	—	
		20	100	370	790	2810	930	57	47	370	44	
		40	130	450	1050	2810	840	59	52	390	36	
		60	180	550	1320	2240	710	62	56	370	—	
2-MT	0.5	5	100	270	600	2040	1000	57	43	360	—	20¼
Sulfur	1.0	10	110	380	870	2670	940	59	47	420	—	
Retarder W	1.0	20	160	480	1020	2890	970	61	51	410	47	
		40	200	620	1190	2640	800	62	55	420	32	
		60	180	700	1320	2680	780	63	57	370	—	
Permalux	0.75	5	90	330	800	2400	990	57	44	330	—	16½
		10	140	550	1220	2270	640	57	48	360	—	
		20	170	720	1390	2610	750	60	52	350	33	
		40	170	840	1520	2550	720	60	55	360	24	
		60	230	910	1600	2350	660	60	56	360	—	
Permalux	0.75	5	100	450	990	2380	640	57	47	360	—	14¼
Retarder W	0.25	10	140	620	1290	2640	790	57	50	370	—	
		20	230	770	1450	2500	720	57	53	380	30	
		40	240	920	1620	2540	680	61	57	360	21	
		60	240	980	1720	2450	660	61	57	320	—	
NA-22	0.5	5	100	380	840	2010	840	58	48	350	—	17½
		10	160	530	1110	2600	820	60	52	370	—	
		20	170	600	1220	2600	760	61	54	380	41	
		40	170	600	1280	2000	650	61	56	370	31	
		60	230	620	1320	2010	630	61	55	320	—	
NA-22	0.5	5	160	550	1130	2380	810	61	53	410	—	12½
Retarder W	1.0	10	210	710	1380	2690	810	62	56	440	—	
		20	310	840	1520	2600	710	63	58	380	43	
		40	310	880	1590	2070	630	63	59	340	30	
		60	300	940	1660	2650	680	63	58	310	—	

TABLE II—EFFECT OF HIGH STYRENE RESINS ON HI-SIL LOADED NEOPRENE W STOCKS

Acceleration		Mins. Cure at 307° F.	Modulus 100%	Modulus 300%	Modulus 500%	Tensile	Elong.	Hard. 0"	Hard. 30"	Tear Lbs./in.	Comp. Set Method B	Mooney Scorch
2-MT	0.5	5	330	880	1590	1840	580	77	65	440	—	35½
Sulfur	1.0	10	450	1110	1930	2890	690	79	69	430	—	
Retarder W	1.0	20	470	1150	2000	2880	690	78	66	410	54	
		40	480	1180	2030	2890	660	78	70	430	46	
		60	440	1130	1940	2920	650	79	72	360	—	
Permalux	0.75	5	280	740	1280	1740	630	76	64	300	—	20¾
		10	430	910	1670	2280	650	78	69	330	—	
		20	450	1020	1760	2310	610	81	72	370	39	
		40	530	1120	1890	2180	550	81	74	380	29	
		60	550	1190	2000	2230	520	81	74	350	—	
Permalux	0.5	5	330	790	1290	2300	770	80	67	300	—	22⅓
Retarder W	0.5	10	470	870	1490	2510	720	80	69	350	—	
		20	440	940	1650	2610	710	81	72	370	45	
		40	550	1090	1790	2370	620	80	74	390	34	
		60	510	1160	2000	2920	670	82	76	350	—	
NA-22	0.5	5	300	790	1430	2570	790	73	62	370	—	16
		10	400	960	1660	2710	720	80	71	380	—	
		20	470	1120	1930	3080	690	78	70	360	47	
		40	500	1160	2100	3180	660	81	75	360	38	
		60	480	1160	2040	2770	630	80	72	360	—	

cures slightly but reduces scorch times and its use does not appear to be particularly desirable. This is shown by the results given in Table I which were obtained in the following recipe:

Neoprene W	100
Hi-Sil (20 vols.)	39
Extra Light Calcined MgO	2
Zinc Oxide	5
PBNA	1
Wood Rosin	5
Other Acceleration	As shown

Effect of Diethylene Glycol

The effect of diethylene glycol in increasing the hardness of Neoprene GN stocks loaded with Silene EF has been known for some time *(2)*. Diethylene glycol also increases the hardness of Hi-Sil loaded Neoprene GN compounds *(1)*. It reduces tensile, modulus and tear resistance at the same time and its use is considered undesirable unless increased hardness is sought.

There appears to be no reason at all for using diethylene glycol in Hi-Sil loaded Neoprene W compounds. It reduces tensile strength and tear resistance slightly without producing much increase in hardness. Modulus is reduced and elongation is increased but these latter effects can probably be obtained with cheaper softeners where desired.

Effect of High Styrene Resins

A considerable increase in hardness of Hi-Sil loaded Neoprene W stocks can be obtained without sacrifice of tensile strength, tear resistance or elongation by use of high styrene copolymer resin. Addition of this type of resin also improves handling of the stock at processing temperatures. Use of resin is not advisable, however, where low compression set is desired. Since the different high styrene resins vary somewhat in dispersibility, a preliminary masterbatching of the neoprene and resin may be found to be desirable.

In examining the recipe below it will be noted that 20 PHR of high styrene resin have been added to the formulation and the Hi-Sil content reduced from 39 to 30 PHR. Generally, it was not found necessary nor desirable to add extra accelerator or sulfur to compensate for the presence of high styrene copolymer. Addition of Retarder W did speed up cure of a Permalux vulcanized high styrene resin-Neoprene W compound even though it was not needed in the non-resin compound as was shown in the section on "Acceleration" above.

The results given in Table II were obtained in the following recipe:

Neoprene W	100
High Styrene Copolymer	20
Hi-Sil	30
Extra Light Calcined MgO	2
Zinc Oxide	5
PBNA	1
Wood Rosin	5
Other Acceleration	As shown

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(2) Gage, F. W., "High Hardness Water-Resistant Neoprene Stocks," *I.R.W.*, Vol. 112, pp. 590-93 (Aug., 1945).

Report on Italian Rubber Industry

Production of rubber goods in Italy in 1951 totaled 88,094 metric tons, an increase of approximately 15% from the 1950 figure of 76,825 tons, according to the Italian Association of Rubber Products Manufacturers (Assogomma) as reported by the U. S. Department of Commerce. Output in the last half of the year, however, showed a downward trend, amounting to 40,055 tons as against 48,039 tons in the first six months. The production of tires and tubes accounted for 68% of the grand total. Imports of natural rubber into Italy increased from 38,212 metric tons in 1950 to 52,008 tons in 1951. Imports of synthetic rubber increased from 2,661 tons to 4,315 tons in the same period.

Editorials . . . . . .

Need for a Solomon

THE price of natural rubber is still plummeting. At this writing it has dropped below 30 cents a pound for No. 1 Ribbed Smoked Sheet, and from all indications it will fall still further within the next two or three weeks when the free market becomes fully effective with the complete withdrawal of the General Services Administration as a purchasing factor other than for strategic stockpile purpose. Although this condition is welcomed in some domestic rubber manufacturing circles, and indirectly by some lay consumers, the situation, like the constabulary's lot, is not a happy one.

It would be a very simple matter to merely state that the problem is one resting completely on the shoulders of the producers in the Far East. After all, the domestic rubber manufacturer is no longer dependent on natural rubber and can secure practically all of the GR-S he needs to fill his current requirements. Furthermore, he can get it for less cost—23 cents a pound. But this would be isolationist thinking and far more appropriate for the 1920's than the 1950's. We cannot close our eyes and minds to the fact that we live in a disturbed world and that factors which tend to upset economic conditions in almost any corner of the world have reverberations which are felt in our own hemisphere.

There are many who will argue that the recent price of natural rubber—between 70 and 80 cents a pound—was unjustifiable, and there are excellent grounds for such argument. There are others who will maintain producers can secure a more-than-satisfactory return from 30 cent-a-pound rubber, and there is some justification for that claim. But these are generalities, and do not take into account the specific problems which have faced the producers in the Far East since the Japanese were driven out. There can be no argument with the fact that the majority of the producers had a rehabilitation job to do, and if the price of natural rubber had not risen to substantial heights they would not have been able to turn in record production figures for the past few years.

The point is that for the past few years the Malayan economy, which is geared to rubber, has been improving, accompanied by an improvement in the standard of living. This improvement has been accomplished by the ability of the rubber producers to pay higher wages, based on the prevailing price of rubber. As an indication of how an increase in middle-class income in the Far East is reflected, there was a substantial rise in the number of marriages in Singapore last year. A minor statistic, but a reflective one. Due to the falling price of rubber, producers have already called a meeting with union officials to request a lower wage scale for tappers and other plantation workers. It is inevitable that lower wages will reduce the standard of living.

In this day and age we cannot close our eyes to the fact that Malaya is faced with a definite communist threat. This is not only evident in the marauding bands which have been interfering with plantation operations for the past several years, but on the political plane as well. The non-communist world knows only too well how quickly these psuedo-politicians grasp every angle for propaganda purposes, and would be quick to attribute any drop in the current Malayan standard of living to the American "capitalists." We do not subscribe to the belief that the doorway to communism will be opened in the Far East unless a quick floor is set on the price of natural rubber, but there is the definite danger of permitting communism to secure a wedge in the door if the present steep decline continues.

What is the answer? It frankly calls for the wisdom of a Solomon. Shall we raise the price of GR-S substantially so that on a price basis alone the natural product would be more competitive? Shall we enter an international cartel which would fix both production rates and prices? Shall we enter into agreements with producing countries guaranteeing fixed prices? Shall we limit the production of GR-S to force greater consumption of natural rubber? Shall we reinstitute specification controls, this time citing natural rubber as the mandatory material? All of these suggestions have been advanced, but all of them interfere with free competition and are utterly distasteful to Americans.

There is one simple answer. Substantially increase the consumption of rubber by finding new applications and new markets. How to secure such an increase is another problem.

NEWS OF THE MONTH

SENATE VOTES YEAR EXTENSION OF RUBBER ACT AS RFC PLANS DISPOSAL OF SYNTHETIC PLANTS

FOLLOWING the recent action of the House of Representatives in voting a two-year extension of the Rubber Act of 1950, the Senate, on May 16, approved a one-year extension of the act to June 30, 1953. The Senate's action now goes back to the House and if not approved, a conference committee will be set up to make the final decision. The ultimate elimination of the act will pave the way for industry to purchase the government-owned synthetic rubber plants. In this regard, the Reconstruction Finance Corporation will soon tackle the job of relinquishing government ownership of the $750,000,000 synthetic rubber industry. Both houses of Congress have given a "green light" to RFC to develop a detailed disposal program. RFC has already called in rubber industry leaders to begin work which will eventually lead to disposal of the plants. The government plans to call in petroleum and chemical firms, as well as the rubber companies, to help work out the program.

In a recent address before a group of Chicago bankers, Harry A. McDonald, RFC Administrator, pointed out that the synthetic plants are doing a business of $35,000,000 to $40,000,000 a month. What is desired now, Mr. McDonald said, is to find a way to turn over on an economic basis the synthetic rubber plants to private industry. Private industry, in turn, will keep the plants running so that production will be available in the event of another emergency.

Disposal of the plants, of course, poses many problems. The plants which RFC would sell include two which make Butyl rubber, 13 making GR-S, and 11 "feedstock" plants. Of the latter, 10 are butadiene units, 8 of these drawing upon private petroleum companies for their raw materials and 2 using privately procured alcohol. The remaining feedstock plant produces styrene. Trade sources believe that it is possible no effort will be made to sell the two alcohol-butadiene plants, since alcohol-butadiene is a costly material.

The Butyl rubber plants produce about 60,000 tons a year, while the GR-S plants are now producing about 700,000 tons a year. These GR-S plants could produce 860,000 tons a year with full use of alcohol-butadiene feedstocks. The core of the industry, plants fed by the eight petroleum butadiene facilities, have an annual capacity of some 650,000 tons, but could operate efficiently at 75 to 85% of capacity.

The disposal of the Butyl plants presents a relatively simple problem. Each of these plants is an integrated operation, drawing on nearby private oil plants for their raw materials. They are operated for RFC by the Esso Standard Oil Co. and the Humble Oil Co., subsidiaries of the Standard Oil Co. of N. J. If the Justice Department, for anti-trust reasons, won't let Esso have both Butyl plants, the chances are good some other company will buy or lease one.

Disposal of the GR-S facilities presents far greater problems. Some of the plants are far from raw materials sources. They are widely dispersed, although most of them are in the Gulf Coast oil area. All of them are big plants, making from 30,000 to 90,000 tons of synthetic a year. Efficient operation stops when production runs below 75 to 85% of capacity.

Determination of fair selling prices and in some way assuring that each buyer of a rubber plant will find an adequate, economic source of butadiene are other major problems facing RFC. These difficulties may also be aggravated by the fact that some GR-S plants are better buys than others, by reason of location or engineering. RFC is now completing a one-year plant modernization program. Some of the plants, however, are ten years old and some of them are nearing obsolescence.

Meanwhile, RFC Administrator McDonald has announced the appointment of Morton E. Yohalem, an expert on corporate reorganizations, to take charge of developing a program for the disposal of the synthetic rubber industry. Mr. Yohalem will serve as a special deputy for rubber facilities disposal. A New York attorney, Mr. Yohalem recently resigned from the Securities and Exchange Commission, where for five years he headed the Division of Public Utilities.

Senate Hearings Held

Earlier in May, in hearings before the Senate Armed Services Subcommittee, only Goodyear favored a two-year extension of the Rubber Act. Goodrich, U. S. Rubber, Firestone and General Tire said another two-year freeze would be too long. In this view they were joined by Esso Standard and Humble Oil. Phillips Petroleum urged the government to sell the plants now and suggested that RFC boost the price of synthetic "to reflect commercial costs", such as taxes, advertising, selling costs, etc.

Phillips and Esso Standard both urged that the government be authorized to sell or lease its two Butyl plants immediately, but General Tire opposed divorcing Butyl from disposal of all other government rubber facilities. President Truman asked Congress last January to free the Butyl plants first, but his request was not granted in the lower house.

General Tire and Esso Standard took their opposing stands on this question, using the same argument, that is, that current research in Butyl holds promise that this rubber may soon replace other mass-produced synthetics in tires. General Tire, in the person of William O'Neil, president, also opposed permitting the sale of any synthetic plants to oil companies, contending that this would place them in a "monopolistic position" since they already furnish the basic raw materials for rubber and are large marketers of tires.

Reclaimers Also Testify

Representatives of the rubber reclaiming industry, in a recent appearance before a Senate Small Business Subcommittee, complained that they are being squeezed by competition from the government-owned synthetic rubber plants. They asked the Subcommittee to make sure that synthetic rubber is not sold at a loss.

J. H. Nesbit, president of the U. S. Rubber Reclaiming Co. and chairman of the Rubber Reclaimers Association, said that if synthetic is being sold at a loss, it means that the tax dollar of the reclaiming industry is being used to subsidize its main competitor and at the same time reduce the market demand for reclaimed rubber.

William Welsh, president of the Mid-West Rubber Reclaiming Co., noted that GR-S is now selling at 23c a pound and said that if the industry were in private hands the price would have to be 28 to 31c to reflect a profit after taxes. He asserted, too, that the government has a price advantage over private industry in the purchase of styrene.

Synthetic production returned to normal early in June after it had been disrupted due to the strike of the oil workers. As a

result of the strike, the copolymer plant at Borger, Texas was shut down, while production at other copolymer units was drastically curbed. It had been estimated that the reduction in the supply of feedstock materials would probably result in the loss of production of approximately 1,000 tons of GR-I at the Baytown, Texas, plant operated by Humble Oil. Inventories of GR-I, however, were said to be sufficient to cover all requirements.

At the time of the strike, RFC reported that its inventory of GR-S was fairly well-balanced by types and that it was in a position to furnish consumers requirements readily with the exception of a few special type polymers. During the strike period, RFC moved feedstock materials to plants where they were most needed for the production of special types.

On May 22, RFC issued a new memorandum covering revisions in the identification system for GR-S rubbers. A report on this new memorandum appears elsewhere in this issue. In accordance with the changes incorporated in the memorandum, RFC has issued a supplemental price list which sets forth prices of the various types of synthetic.

Due to recipe changes, the prices of four polymers have increased ¼c per pound. GR-S 1103 and 1600 contain more rubber hydrocarbon than X-579 and X-580 types and consequently their prices have been increased to 17.75c and 18.25c, respectively. In addition, as only Circosol 2XH is incorporated in X-682 and X-693, the revised prices of these polymers are 17.75c and 19.50c per pound, respectively.

Natural Rubber Price Cut

As the RFC set about formulating plans for the disposal of the synthetic rubber industry, the General Services Administration acted to cut the price of natural rubber imported by the government for resale to industry. Effective June 1, the price was set at 38c a pound, a drop of 10½c from the previously-established price. The price will be in effect until June 30, at which time the government will surrender its exclusive import authority over rubber. After June 30, GSA purchases of natural rubber will be confined to that necessary for the national stockpile.

The Natural Rubber Bureau, meanwhile, said that majority sentiment in the American government is against further reducing the price of synthetic rubber this year. The Bureau deplored the "psychological fear reaction" which has driven the price of natural rubber close to the government's selling price of 23c a pound for GR-S. It traced this fear to "strong rumors in Southeast Asia" that the U. S. will sharply reduce its selling price for synthetic in the near future. RFC has long held to the policy of selling synthetic at cost. Moreover, these costs are expected to drop to approximately 19c a pound when high cost alcohol-butadiene facilities are shut down later this year.

The continued rise in the production of synthetic rubber caused the Office of International Trade of the U. S. Department of Commerce to lift all quota restrictions on the export of GR-S on May 23. This is the first time since the Fall of 1950 that shipments of GR-S abroad have not been under strict quota regulation.

NPA Eases Consumption Curbs

NPA, on June 6, lifted its ban on the use of No. 3 pale crepe rubber in rubber products and acted to give manufacturers larger allotments of cold rubber and high tenacity rayon yarn. The action was taken in an amendment to NPA Order M-2. As of July 1, manufacturers will be able to take 70% of their GR-S purchases in the form of cold rubber. The previous limit was 50%. The increase is in line with RFC plans to step up its output of cold rubber. The percentage of high tenacity rayon which may be used in rubber products was increased from 120 to 130% of base period usage, effective for the second quarter. The limit has been eased because output of high tenacity rayon is being stepped up to an annual rate of 436,000,000 pounds in the coming quarter, about 5% greater than previously anticipated.

The disturbed state of affairs in the Far East, as cited by the Natural Rubber Bureau, was underscored by recent events in Malaya. According to reports reaching this country from Singapore, rubber prices have shown a substantial drop while opposition to the control of exports to Red China and other communist countries has grown. Trade sources indicate that the reason for the slump was the refusal by the U. S. to buy. It was stated that it was unreasonable that this state of affairs should continue while Malaya was prevented from selling to markets that would only too willingly absorb the present surplus.

Ceylon may also take steps to curb a leak through which almost 15,000 long tons of Ceylonese rubber have been shipped to Red China in the past eight months. It was intimated that the government of that country will soon take up the matter of restricting rubber exports.

Ceilings Set on Rubber Chemicals

Ceiling prices for all rubber chemicals have been established by the Office of Price Stabilization in CPR 147, which became effective June 9. The new regulation, which followed numerous conferences with manufacturers and distributors of rubber chemicals and compounding ingredients, supersedes both GCPR and CPR 22 insofar as rubber chemicals are concerned. Individual ceilings are set in the regulation for specific "tonnage items" while ceilings for other materials are obtainable under an OPA formula provided in the order.

In offering an explanation of CPR 147, OPS said that substantial variance in ceilings had resulted from the application of CPR 22, which injected an abnormal factor in a market where prices for the major tonnage bulk items sold to industrial users were relatively uniform.

The new regulation sets ceiling prices per pound for the specified "tonnage" rubber chemicals in ton lots, f.o.b. sellers' works, for deliveries in Denver, and points east of Denver, with minimum transportation charges to destination included. These rubber chemicals are synthetic organic chemicals used in the compounding and processing of synthetic and natural rubber, and are included under the following commodity designations: accelerators of vulcanization; activator of accelerators; antioxidants and stabilizers; peptizers; retarders of vulcanization; special materials, and vulcanizing agents.

For sales of the specified rubber chemicals in amounts other than ton lots, or for deliveries west of Denver, or for shipments from other than production points, ceiling prices are determined by applying to the ceilings established for ton lot sales the differentials which the seller had in effect under the GCPR.

The ceiling prices established by CPR 147 result from determination by OPS of a weighted average price increase factor. This is derived from the individual price adjustment factors reported by individual producers under CPR 22. Application of the weighted average factor to GCPR ceilings for the major tonnage bulk items sold to industrial users is expressed in dollars and cents.

For sales of the listed chemicals other than the types named in the dollars-and-cents ceiling price schedule, the regulation requires application of the weighted average uniform increase factor—103.4%—to the producers' GCPR ceiling prices. The same technique is used with respect to sales other than the listed rubber chemicals.

Basis for Ceilings

The industry-wide factor used in this regulation and the ceiling prices established were determined from an OPS study late in 1951. These celings, while higher than those previously in effect under the GCPR, are lower than the ceilings under CPR 22, applicable to producers representing a large percentage of total sales.

At the time of the OPS study last year, the industry earnings standard was still in process of development, and the early discussions with the rubber chemicals manufacturers were on the basis of an industry-wide factor under CPR 22.

OPS said that, in general, if ceiling price levels are now represented to be no longer fair and equitable, the agency stands ready to give necessary price relief should further study of the industry indicate that such relief is required under the industry earnings standard, or under a production standard applied on an industry-wide basis.

In another price action, OPS on May 20 suspended price controls on raw cotton and on practically all textiles. Exceptions to the suspension order included all synthetic staple fibers and synthetic tire fabrics. The cotton ceiling will be suspended until selling prices rise to 43.05c a pound for spot cotton and 43.39c a pound for

futures, both one trading day below present ceilings. Ellis Arnall, OPS Director, said the establishment of recontrol points one trading day below ceilings should allow sufficient time to terminate this suspension before prices rise above CPR 8 ceilings.

Two NPA Orders Revoked

Allocation controls over two materials of direct interest to the rubber manufacturing industry have been revoked in recent weeks by the National Production Authority. A 30% expansion in cotton duck production capacity has made it possible for the agency to revoke Order M-53. The original order was issued on March 31, 1951, its purpose being to insure an equitable distribution of rated orders among all producers of cotton duck in order to guarantee maximum production and reduce to a minimum the disruption of normal distribution brought about by defense buying. The revocation was effective as of May 26.

Allocation controls on resorcinol, covered in Schedule 6 to Order M-45, the basic chemicals allocation order, were removed on May 19. NPA explained that the removal of plant bottlenecks by the major producer of this material and the re-entry into production by a second company resulted in a substantial increase in supply, making revocation of the order possible.

NSC Reports Fewer Accidents

Workers employed by member companies of the National Safety Council had fewer accidents in 1951, but the mishaps they did have were more serious. Industrial injury rates for 1951, released by the Council in advance of the 1952 edition of its annual statistical yearbook, "Accident Facts," show a modest reduction in frequency but an equal increase in severity of 1951 accidents as compared with 1950. In the rubber industry, the accident frequency rate was 5.91, 16% less than in 1950. As for severity rate, the rubber industry in 1951 scored .36, 49% less than in the preceding year. Frequency rate means disabling injuries per 1,000,000 man-hours, while severity rate is explained as time charges (in days) per 1,000 man-hours.

Murray Sells Auburn Rubber Stock

A. L. Murray, president and chairman of the board of the Auburn Rubber Corp., Auburn, Ind., has announced that he and his wife have disposed of all their holdings in the company to executives and supervisors of the firm. With the transaction, David M. Sellew, executive vice-president and general manager, becomes the largest stockholder. Mr. Murray continues as president and chairman of the board.

Rubber Firm Quits Malaya

Because of "mounting difficulties of supervision and sabotage" a British rubber company has sold its 228-acre estate in Malaya and is transferring its business elsewhere. The Wilkinson Process Rubber Co. said it plans to deal in "Linatex" produced in Jamaica.

Wildcat Strike Cost

According to the *Akron Beacon Journal*, more than 3,500,000 man-hours are lost annually in the rubber industry in Akron through wildcat strikes. These strikes cost Akron district rubber workers, for example, more than $5,000,000 a year in wages. In 1951, the report states, rubber companies were hit with a total of 182 illegal stoppages. In the first four months of 1952, the same companies have had 87 stoppages, costing the workers about $2,300,000, and the companies have lost 1,500,000 man-hours of production. L. S. Buckmaster, president of the United Rubber Workers, CIO, has urged rank and file union members to settle grievances through the procedure outlined in collective bargaining agreements.

Emery Ozone Oxidation Process

Emery Industries, Inc., Cincinnati, Ohio, has received government permission to start construction on its new, $2,000,000 plant for the oxidation of oleic acid by ozonization. Emery has also disclosed the results of an extensive research program during which its chemists and engineers cooperated with the Welsbach Corp. of Philadelphia, Penna., to reduce to practice, the first large scale use of ozone in a chemical process industry. Production from this new plant will increase manyfold, Emery's present output of azelaic and pelargonic acids, the two products which result from the oxidation of oleic acid. Azelaic acid finds use in the manufacture of plasticizers for vinyls and synthetic rubbers.

Advance Solvents Names New Agent

Advance Solvents & Chemical Corp., New York, N. Y., has named the Barrett & Breen Co. as its New England representative in the plastics, rubber and adhesives fields. The firm, headed by James J. Breen and Frank N. Barrett, has its office at 50 Congress Street, Boston 9, Mass. Mr. Breen formerly headed technical sales of vinyl resins in New England for the B. F. Goodrich Chemical Co. Prior to that, he spent several years in production and development work with Goodrich. Mr. Barrett was last associated with the William Whitman Co. as plant manager of its Plastic Division plant at Lynn, Mass.

Los Angeles Plans Gala Outing

The Los Angeles Rubber Group was scheduled to hold its Annual Summer Outing at the Hotel Del Mar, Del Mar, Calif., on June 7 and 8. The outing was planned with a Hawaiian motif and was to have featured a giant "Luau" or native Hawaiian-style feast. A full program of games and events were scheduled for the two-day outing with entertainment in the mode of the islands provided.

RFC ANNOUNCES NEW CHANGES IN IDENTIFICATION OF GR-S RUBBERS

Additional changes in its plan for the identification of GR-S synthetic rubbers, as originally outlined in its memorandum of March 10 and revised in its memorandum of April 22, have been announced by the Synthetic Rubber Division of the Reconstruction Finance Corporation. The latest revisions follow further discussions with various members of the rubber consuming industry.

One of the principal changes involves the non-staining stabilizers. In the original memoranda it was stated that Wingstay S and Polygard would be incorporated in various polymers on an interchangeable basis. Many members of the industry have since recommended that, rather than interchange these stabilizers, Wingstay S be incorporated in certain of the non-staining polymers and that Polygard be incorporated in the remaining non-staining polymers. Inasmuch as this could be done without increasing the number of polymers, these changes have been made by RFC and are reflected in the descriptions of polymers available attached to a memorandum issued on May 22.

Where the phrase "Wingstay S or equivalent" is used in the new list, the word "equivalent" means a stabilizer meeting the Synthetic Rubber Division's chemical specifications for stabilizers of the mixed alkylated phenol type. Where the phrase "Polygard or equivalent" is used, the word "equivalent" means stabilizers meeting the division's specifications for stabilizers of the tris-nonyl phenyl phosphite type. Inasmuch as the stabilizers will now be identified by the polymer number, RFC said, there will be no need to identify them on the bags containing the rubber, as indicated in the memorandum of April 22.

The new memorandum also states that GR-S-1006 will be shortstopped with carbamate instead of sodium sulfide. Carbamate has been determined a more effective shortstop and its use should result in a more uniform polymer.

The April memorandum stated the Circosol 2XH, Sundex 53, Shell SPX 97, Dutrex 20 and similar types would be used interchangeably in oil-extended polymers. Two exceptions have now been made. Due to its non-staining characteristics, only Circosol 2XH will be used in X-682 and X-693.

The May 22 memorandum also provides that two additional furnace blacks—Continex and Statex R—will be used interchangeably with Philblack O, Aromex, and Vulcan 3. Continex will be identified by the letter "C" and Statex R will be identified by the letter "R". Such letters will appear as suffixes to the polymer number, as indicated in the memorandum of April 22, 1952.

Harwick Standard Chemical Co., Akron, Ohio, has released a new pamphlet entitled "Open House" which tells of the rebuilding of the Akron plant after it was struck by fire about a year ago, and which gives a basic idea of the aims and purposes of the organization.

SEVENTH FOUNDATION LECTURE DELIVERED BY DINSMORE AT IRI

Dr. R. P. Dinsmore, vice-president in charge of research and development of the Goodyear Tire & Rubber Co., delivered the Seventh Foundation Lecture of the Institution of the Rubber Industry in Wolverhampton, England on May 23. The title of his lecture was "Economic and Physical Aspects of GR-S Modifications." Dr. Dinsmore stated that there is room and need for both natural and synthetic rubber in a market which has proved capable of rapid expansion under favorable conditions.

Forecasts of a steadily expanding rubber consumption in this decade, he declared, makes it imperative that the synthetic rubber industry be maintained. By 1960, any excess over demand of total rubber supplies, in this country and the world, will disappear, his projection shows. Dr. Dinsmore said we are left with the conclusion that the synthetic rubber business is essential for the present needs of the rubber industry, and if allowed to diminish in its potentialities would remove the greatest hope for the industry's future expansion.

The speaker also noted that continuing research in the field of oil-extended synthetic cold rubber gives promise of further progress with both synthetic and natural rubbers in this field. The discovery of how to process "tough" rubbers by the oil-extended method used in conventional rubber factory equipment is regarded as one of the most important to come out of America's rubber research programs in years.

Rubber chemists have long believed that these tough rubbers are superior in resilience and toughness to the soft rubbers ordinarily used. Until now, he said, the problem has been how to use them in the factory. Addition of large quantities of readily available petroleum oils, which act as an internal lubricant, permits processing in the conventional equipment. The oil-extended method overcomes the tendency of tough rubbers to crack and tear under tension, as in the shaping of tire treads, it was pointed out.

Recent Tire Tread Tests

Tire tread tests conducted by Goodyear and the government, Dr. Dinsmore said, have proved that these oil-masterbatched rubbers give up to 21% longer tread wear than standard cold or GR-S rubber. Lower heat build-up of these oil-treated rubbers gives promise of using them for heavy-duty truck tires, he added.

In the research project, tests of various tough rubbers were made with varying amounts of plasticizing oil. Among the most successful were those using 25 parts of oil to 100 parts of butadiene-styrene which resulted in the improvement of 21% in tread wear over both GR-S and standard cold rubber.

Dr. Dinsmore noted that recent experiments of great promise have been conducted with the new tough synthetic Alfin rubber, developed by Professor A. A. Morton of the Massachusetts Institute of Technology. Alfin rubbers are described as the most resilient of all the polymers of high molecular weight. Extremely difficult to process under ordinary circumstances, these polymers are particularly well adapted to the oil masterbatching process, according to the speaker.

The Alfin process, he said, produces soluble polymers of extremely high molecular weight. The reaction is carried out in a hydrocarbon solvent such as pentane. Upon completion of the polymerization reaction, rubber processing oils are added and thoroughly incorporated before the evaporation of the solvent. In this way, 100 or even 200 parts of oil per 100 parts of polymer can be added to give an oil-masterbatch which processes more easily than the very tough, oil-free base polymer. The oil can be added to the polymer after it has been isolated, or it can be added with the monomers as a partial or total replacement for the solvent prior to polymerization.

Use of the large amounts of oil with Alfin polymers, it was explained, are required to reduce the dilute solution viscosity value of an Alfin polymer to that of GR-S or cold rubber. The extremely high molecular weight of Alfin polymers is also responsible for the unusually high resilience values exhibited by them and their oil masterbatches. Their dynamic properties are superior to those of cold rubber and approach those of Hevea, he added.

Commenting on the future outlook for oil-extended rubbers, Dr. Dinsmore sees the current rubber development as the first chapter of an exciting series to follow. It is a distinct possibility, he declared, that useful improvements to natural rubber, as well as to synthetic, may result from further investigations in this field.

The speaker concluded by pointing out that those who have grown with the industry in this period of its dynamic development have much for which to be thankful. A debt is owed to those who, in the past, laid such firm foundations, and to contemporary figures for their faith and unflagging zeal in creating the structure of today. Dr. Dinsmore opined that we can best pay these debts by our own faith in the industry's future and by contributing what we can to its expanding structure.

NAUGATUCK CHEMICAL NAMES NEW TECHNICAL SALES REPRESENTATIVES

Robert P. White

Carl W. Virgin

Naugatuck Chemical Division, U. S. Rubber Co., has appointed Robert P. White and Carl W. Virgin as technical sales representatives for Marvinol, Kralastic and Vibrin resins. Mr. White will make his headquarters in the division's main plant at Naugatuck, Conn., and cover Connecticut, western Massachusetts, upper New York State and Vermont. Mr. Virgin will make his headquarters at the division's branch office in New York City and will cover the New York metropolitan area. Born in Philadelphia and educated in Columbia University, Mr. White was formerly employed by Weiss and Downs, Inc., consulting chemists, and the Glenn L. Martin Co. of Baltimore, Md., in various chemical sales and technical service capacities. He joined Naugatuck Chemical in 1949 when it purchased the assets of the Martin company's Chemicals Division. He holds five U. S. patents on various synthetic resins and organic chemicals. Born in Elizabeth, N. J., and a graduate of the University of Pittsburgh, Mr. Virgin was formerly employed by the Vulcanized Rubber and Plastics Co. of Morrisville, Penna., as chief research chemist. He was also associated with the Ellis Foster Co. of Montclair, N. J., and the Mellon Institute in Pittsburgh, Penna., in chemical research work.

Shield Rubber Co., one of the largest distributors of industrial rubber products in the United States, is moving its Chicago branch of operations into larger quarters at 108 North Clinton St.

INTERNATIONAL RUBBER STUDY GROUP HOLDS NINTH MEETING IN OTTAWA

The Ninth Meeting of the International Rubber Study Group was held during the week ending on May 9 in Ottawa, Canada. The meeting was held under the chairmanship of A. F. W. Plumptre, head of the Canadian delegation. Vice-chairmen were M. C. Lakshmakara Kashemsanta, head of the Thai delegation, and Dr. R. Blankenfeld, head of the delegation of the Federal Republic of Germany.

The meeting was attended by delegations from Australia, Belgium, British Colonial and Dependent Territories, Burma, Canada, Ceylon, Denmark, Federated Republic of Germany, France, Indonesia, Italy, Japan, Liberia, Netherlands, Thailand, United Kingdom, United States of America, and Viet-Nam, and by observers from the United Nations Organization, the Food and Agriculture Organization, the Organization for Economic Cooperation, the Organization of American States, and the International Rubber Development Committee.

At the meeting, very full information concerning the policies and problems of member governments was exchanged. A number of short-term and long term problems of special concern to member governments, to the producing and manufacturing industries, and to the rubber trade were discussed and where necessary these will be further considered by the governments and other parties concerned.

Production Uncertainties Noted

The group noted that many of its members were greatly concerned about the uncertainties of rubber production, consumption and price and, because of considerable variety of opinion as to the best method of attempting to solve these problems, the group resolved to pursue the matter by establishing a working party with the following terms of reference:

"To consider whether the measures designed to prevent burdensome surpluses or serious shortages of rubber are necessary and practicable; to prepare drafts of any agreements required to implement such measures; and to report back to the Study Group as soon as possible." It was agreed that membership of the working party should be open to all the members of the group who wish to be represented on it.

The group also examined the world statistical position and made estimates for natural and synthetic rubber production and consumption during 1952. It was estimated that world production of natural rubber would be around 1,690,000 long tons, while production of synthetic rubber in member countries would be around 910,000 long tons.

In regard to consumption it was estimated that the world might consume 1,450,000 long tons of natural rubber and approximately 875,000 long tons of synthetic rubber, apart from the synthetic rubber produced in non-member countries. The balance of estimated production over estimated consumption of both natural and synthetic rubber was expected to be absorbed into governmental and commercial stocks. Tables on natural and synthetic rubber production follow:

NATURAL RUBBER PRODUCTION IN 1952
(estimated)

Territory	*Long Tons*
Malaya	550,000
Indonesia	675,000
Ceylon	105,000
Viet-Nam and Cambodia	60,000
Thailand	100,000
British Borneo	60,000
Burma	10,000
Liberia	36,000
British Africa	20,000
Belgian Africa	18,000
French Africa	4,000
Other Countries	52,000
Total	1,690,000

SYNTHETIC RUBBER PRODUCTION IN 1952
(estimated)

Territory	*Long Tons*
U. S. A.	825,000*
Canada	79,000*
Germany	6,000
Total	910,000

*Figures for GR-S "cold rubber" are inclusive of oil content.

The group also considered the world statistical position of natural rubber latex, and estimated that world production in 1952 might be about 85,000 long tons (dry rubber content) while consumption might be in the neighborhood of 90,000 long tons (dry rubber content). It is estimated that stocks are sufficient to cover the difference between consumption and production for 1952. The figures for natural rubber latex production and consumption are included in the estimates given for world production and consumption of natural rubber. The group also noted that the rubber reclaiming capacity in member countries had risen by about 100,000 long tons since 1945.

The group continued its policy of examining problems concerning the expansion of world consumption of rubber. It considered that the development and improvement of the highway system in all countries were the most effective means of encouraging the increased use of vehicles with an attendant enhanced rubber consumption. It also considered that the progress made in regard to the use of rubber in the construction of roads since the last meeting had been very satisfactory. Demonstration roads had been laid in many parts of the world totalling several hundred miles in length.

A number of problems relating to the packing, shipping and marketing of rubber were examined by the group. The need for improvement in packing and quality was stressed and, while it was agreed that the new RMA samples which are now ready should stand, it seemed desirable to extend the range by adding two new types.

It was also agreed that the experience gained in 1952 should be carefully reviewed and a report thereon submitted to the group in 1953.

The group also reviewed developments in the supply of technically classified rubber and noted that some 8,000 tons had been provided during 1951 from Cambodia, Viet-Nam and Malaya.

It was decided that Belgium, British Colonial and Dependent Territories, Ceylon, France, Indonesia, Liberia, Netherlands, Thailand, the United Kingdom, and the United States of America will be the members of the Management Committee for the coming year. The group also welcomed the invitation of the Danish government to hold its next meeting in Copenhagen at a date to be decided later.

Industry Comments

Commenting on the appointment of a committee by the group to consider whether steps are necessary to prevent surpluses or shortages of rubber, John L. Collyer, president of the B. F. Goodrich Co., stated that the U. S. government has no business participating in any international agreement on rubber or in a cartel arrangement. He asserted that such steps would force the U. S. "further long the road to socialism" and lower the nation's standard of living.

Mr. Collyer said an international agreement on rubber would be contrary to the declaration of policy contained in the Rubber Act of 1948 and 1950 which states that

ESTIMATED NATURAL AND SYNTHETIC RUBBER CONSUMPTION IN 1952
(long tons)

Territory	*Natural*	*Synthetic**	*Total*
U. S. A.	465,000	790,000 (*a*)	1,255,000
United Kingdom	210,000	4,000	214,000
Belgium	15,000	1,000	16,000
Denmark	6,000	(*b*)	6,000
France	124,000	13,000	137,000
Federal Rep. of Germany	88,000	12,000	100,000
Italy	38,000	8,000	46,000
Netherlands	15,000	1,000	16,000
Australia	39,000	(*b*)	39,000
Canada	39,000	35,000	74,000
Japan	55,000	2,000	57,000
Other Countries	356,000	9,000	365,000
	1,450,000	875,000	2,325,000

* Excluding Russian produced synthetic rubber. (*a*) Inclusive of oil in oil-extended GR-S. (*b*) A small amount of synthetic rubber is expected to be used.

interests of the U. S. "can and will best be served by establishing within the country a free competitive synthetic rubber industry." He stated quality and price will be the main factors in future competition between natural and synthetic rubber.

Harvey S. Firestone, Jr., chairman of the board of the Firestone Tire & Rubber Co., upon his return from the meetings in Ottawa, stated that progress in rubber, both for producers and consumers, can best be attained, not through controls, but by expanded markets for rubber products throughout the world under the competitive free enterprise system.

Mr. Firestone also stated that synthetic rubber has won public acceptance and has established for itself a permanent and vitally important place. In looking ahead to the future of synthetic rubber, Mr. Firestone said that it is quite conceivable that the day may come when synthetic rubber of many kinds will be available to meet every need of the rubber products manufacturing industry.

Rubber Group Program Service

The Division of Rubber Chemistry, A. C. S., has frequently been asked by the various rubber groups for assistance in providing speakers on rubber industry technical subjects. The Liaison Committee of the division, which is headed by the vice-chairman, has been assigned this problem. The committee will help the groups in securing speakers when requested to do so and will act as a clearing house between the groups and organizations to furnish speakers. It is felt specifically that suppliers to the rubber industry might welcome the opportunity of registering a paper with the Liaison Committee for presentation before the various groups. The Division of Rubber Chemistry invites all companies who might have a paper of interest to the groups, to register the paper with Vice-Chairman Seward G. Byam, Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del., or with any of the members of the committee. Committee members include: R. E. Hutchinson, Firestone Tire & Rubber Co. of California, 2525 Firestone Blvd., Los Angeles, Calif.; A. E. Laurence, Phillips Chemical Co., 230 N. Canal St., Chicago, Ill.; H. W. Sutton, Boston Woven Hose & Rubber Co., 29 Hampshire St., Cambridge, Mass.; and T. A. Werkenthin, Bureau of Ships, Navy Department, Washington, D. C.

Gates Club Hears Spencer

The May 22nd meeting of the Gates Technical Club, held in Denver, Colo., was addressed by Leland E. Spencer, chief of the Synthetic Rubber Division, Reconstruction Finance Corp. Mr. Spencer discussed the rubber picture from the time before World War II through the Korean conflict. He discussed the technological advances which have been made in synthetic rubber and the scope and complexity of international relations with regard to rubber. Mr. Spencer also discussed the question of controls over rubber and the problems of stockpiling.

Higbee Named Vice-President

Dr. William Higbee

Dr. William Higbee has been promoted to vice-president in charge of research of the Testworth Laboratories, Inc., Chicago, Ill. Dr. Higbee has been associated with Testworth since September, 1950, in research, development and technical sales capacities. A graduate of the Massachusetts Institute of Technology, Dr. Higbee received his B. S. in 1929 and Ph. D. in 1933.

Kwik-Grip Carpet Tape

A quick, easy method of joining carpets both in the home and in carpet workrooms which eliminates tacking, sewing and makes possible a flat, almost invisible seam, has been developed by the Naugatuck Chemical Division, U. S. Rubber Co. The method utilizes a new type of fabric and paper tape with built-in metal grips and a long-wearing rubber-based adhesive. The carpet is seamed while lying face upward. This facilitates pattern matching in figured carpeting. The tape, 4 inches wide, is placed on the floor at the point where the seam is to be made. The adhesive is applied to the tape. One section of the carpet is laid over the tape to its mid-point. The second section of carpet is "kicked" tightly against the first section with a kicking tool. Pressure is applied along the seam so that the needle-like metal grips in the tape will penetrate the carpet backing. The adhesive, together with the metal grips, seal the seam both mechanically and chemically. The tape is being marketed under the trade name "Kwik-Grip", while the adhesive is marketed under the trade name "Rug Sealz".

Industrial Latex Moves Plant

Industrial Latex Co., formerly located in New York, N. Y., has moved its production and office facilities to a new and larger plant at 306 Mt. Pleasant Avenue, Wallington, N. J. The new plant has more than 30,000 square feet exclusively used for the production of adhesive and coating compounds. Complete new manufacturing, office and research laboratories will be installed at the new plant.

Starting a rubber library? Use the coupon on page 399.

Behr-Manning Rubber-Rim Wheel

Behr-Manning Corp., Troy, N. Y., has been instrumental in the development of an entirely new design in abrasive belt contact wheels. This new principle has been embodied in an abrasive belt contact wheel known as the "Rubber-Rim" wheel. The wheel is constructed from two basic members; a steel rim onto which rubber in durometers from 10 to 90 has been molded and a set of flanges which contain the rubber rim. The new wheels are said to offer several advantages over the conventional solid disc wheels which are constructed of rubber molded onto a solid aluminum disc. They are lighter in weight, and the rubber face can be replaced with a new "Rubber-Rim" should it be damaged or worn out. The new wheels are available in the popular company "Cog-Tooth" design as well as the regular 45° serrated and straight face wheel. The "Rubber-Rim" wheel is now available in 14 and 16-inch diameters. The new wheel is now being made by Divine Brothers of Utica, N. Y., and the Chicago Rubber Co. of Chicago, Ill. The Divine Brothers version of the "Rubber-Rim" wheel is assembled at the factory with through-riveted steel flanges and is balanced and trued as a unit. The Chicago Rubber unit can be separated by loosening 4 Allen set screws which hold the tire between two aluminum flanges. This feature permits the user to interchange various wheel widths by having a set of flanges and "Rubber-Rims" of various widths.

Shoulder Length Rubber Glove

A new lightweight, extra-sensitive "fit either hand" rubber glove, developed for potentially hazardous research work at the University of Rochester Atomic Energy Project, is now being manufactured by the Dewey & Almy Chemical Co., Cambridge, Mass. The glove was designed primarily for radioactive, chemical and bacteriological research work in dryboxes. Extra sensitivity without loss of contamination protection is made possible by the company's development of a special neoprene rubber compound and a dipping technique which has produced a glove in a thinness of fifteen-thousandths of an inch, including tolerances, without increasing porosity. Although designed primarily for research work, it is felt that the glove will be suitable for a wide range of other technical and industrial purposes.

G-E Rubber-Phenolic Varnish

A new rubber-phenolic varnish that permits the manufacture of laminated plastics having two to three times the impact strength of those made with conventional varnishes, has been introduced by the Chemical Division of the General Electric Co., Pittsfield, Mass. G-E's new rubber-phenolic varnish, 12359, has been formulated to tackle tough mechanical applications where higher impact and greater flexibility and toughness are required, the company stated. Gears, shuttles, tubing and caster wheels are representative of the jobs where rubber-phenolic laminates are expected to make contributions.

RMA REVISES TYPE DESCRIPTIONS AND PACKING SPECIFICATIONS FOR RUBBER

Revised type descriptions and packing specifications for natural rubber have been adopted by the Rubber Manufacturers Association and endorsed by the Rubber Trade Association of New York. The new descriptions and specifications become effective for contracts entered into on or after July 1, 1952, and supersede in their entirety the booklet "Crude Rubber Type Descriptions and Packing Specifications for Crude Rubber", which was dated August, 1938, as well as the "Temporary Packing Specifications for Crude Rubber" which became effective July 1, 1951.

The purpose of the revision has been to bring up to date a document which will be 14 years old next August and which does not recognize certain advances that have been made in the intervening years. It has been written in more understandable language and specifically covers many points which have heretofore been subject to varying interpretations. It is the opinion of the RMA that the revision will be helpful to producers in clarifying what is wanted in the American market.

Like the previous editions, the current revision includes only grades of rubber derived from the latex of *Hevea brasiliensis*, since all known requirements for dry natural plantation rubber can be satisfied with one or more of these official types. In the revision, one new type has been added, four grades have been added, and one grade has been deleted. The type descriptions now cover 9 types and 30 grades.

For each of the RMA types there have or will be established official RMA type samples. These sample books contain several carefully selected grades of rubber showing the range of quality included in the type and grade represented. Deliveries of types specified in contracts must conform to the average quality represented by the several sheets in the type sample book. Rubber inferior to any part of the RMA type cannot be averaged with superior rubber to make up a proper tender. A delivery consisting entirely of rubber equal in quality to the lower pieces in the official sample book of the contract grade is not a proper tender.

Discussion at Ottawa

The whole subject of RMA type samples came up for very serious discussion at the recent meeting of the International Rubber Study Group at Ottawa, Canada, a report on which appears elsewhere in this issue. The producer nation representatives recommended that producers should establish type samples rather than consumers, and were prepared to set up a whole new range of types. American delegates recommended that the renewed RMA type samples should be recognized as universal standards. A compromise was reached in that all of the renewed RMA types are to stand, but two additional types will be established.

In accordance with this compromise, two new RMA grades will be added in the form of an amendment to the official range of grades listed in the revised type descriptions. These will be No. 3A Thick Blanket Crepe (Amber), a grade between the present RMA Nos. 3 and 4 Thick Blanket Crepe (Amber), and No. 4A, a grade below the present RMA No. 4 Thick Blanket Crepe (Amber). An appropriate amendment will be issued when these new types have been established.

The Crude Rubber Committee of the RMA is planning to hold meetings in principal rubber manufacturing centers for the purpose of explaining to all rubber manufacturers the type samples, descriptions, packing specifications, and the advantages of proper rubber inspection. Although copies of the revised type discriptions and packing specifications have been sent to all domestic rubber manufacturers, extra copies can be obtained by addressing a request to W. J. Sears, Rubber Manufacturers Association, 1832 M St., N.W., Washington 6, D. C.

Background of the Revision

In connection with the issuance of the newly-revised type discriptions and packing specifications, the RMA Crude Rubber Committee, of which Mr. Sears is chairman, has pointed out that the manufacturing processes and compounding techniques used by the American rubber consuming industry have become standardized over the years to the use of uniform RMA types and grades of rubber. The off-quality rubber that has been accepted since World War II, because of necessity, has caused hardships in numerous factories.

Approximately 41.6% of the 498,543 long tons of natural rubber imported into the United States during 1951 were below the grade contracted for, according to statistics compiled by the General Services Administration, at least 11% having been one grade or more below contract grade, which is usually considered in the non-bona fide category. Most of this off-grade rubber was sold to domestic rubber manufacturers who utilized the material as the lowest grade in which it was classified by inspection.

Despite criticism of the RMA grades voiced by some producing interests in the Far East, it is the contention of the RMA Crude Rubber Committee that the 30 grades of rubber included in the newly-revised type descriptions permit the grading of practically all dry crude rubber being produced into one of the acceptable grades. When special difficulties exist, as they do on occasion, the RMA has cooperated, even to the extent of lowering its standards with respect to color for grades other than Ribbed Smoked Sheets and Pale Crepes in recognition of production conditions.

In concluding its comments on the revised descriptions and packing specifications for natural rubber, the RMA Crude Rubber Committee indicated that there is a substantial domestic market for both natural and synthetic rubber, but that the future of the natural rubber industry will best be served by emphasis on uniformity, cleanliness, proper grading and good packing.

Need a personal file of RUBBER AGE? Use the coupon on page 425.

Raises Foam Mattress Production

Firestone Tire & Rubber Co. has announced that its output of foamed latex mattresses has been more than tripled with the completion of what is said to be the largest and most modern automatic production line in the industry. A mattress a minute can now be produced, the company states. The latest addition to the foamed latex facilities at the Firestone Industrial Products Co. plant at Fall River, Mass., marks the fourth time since World War II that production has been at least doubled, and establishes foamed latex as one of the fastest growing product lines in the industry. Representing an investment of more than $2,000,000, the new facilities include the best of quality control devices and an electronic unit that cuts drying time for a Foamex mattress from two hours to twenty minutes. The new unit is the latest phase of an automatic production cycle which begins at latex collection stations on Firestone's Liberian plantations. There is no manual handling of the materials after the latex is collected from the trees until the finished mattress comes off the new production line. By eliminating slow and costly hand operations, products of superior quality are produced at a faster rate.

American Cyanamid Plans Plant

American Cyanamid Co., New York, N. Y., will build a plant near New Orleans, La., for the production of chemicals from natural gas. This will place the company in the field of basic production from hydrocarbons, a development which is expected to add a substantial number of new items to the list of more than 5,000 products already manufactured by the company. The new plant, for which a Certificate of Necessity was recently issued, will represent an investment of about $50,000,000, and will be located on a 600 acre site in Jefferson Parish, La., about 10 miles above New Orleans on the west bank of the Mississippi. As initially projected, the plant will produce acetylene, hydrocyanic acid and derivatives of these products, among them acrylonitrile and ammonium sulfate. These basic materials provide a foundation for the eventual production of a wide range of both hydrocarbon and nitrogen chemicals for industrial and agricultural uses.

Contribute to Forrestal Center

Twenty-two of the country's major corporations have become corporation associates of Princeton University's James Forrestal Research Center in a program designed to further basic scientific research. The corporations have already contributed more than $550,000 to the center in the interest of "solving problems of prime importance to the advancement of knowledge." Payment of a minimum fee of $25,000 entitles a corporation to become a corporate associate for 5 years. Among the companies who have contributed to the center are the Firestone Tire & Rubber Co. and the B. F. Goodrich Co.

Hale and Kullgren Expanding

Hale and Kullgren, Inc., an associate of the Aetna-Standard Engineering Co., in a general expansion of company activities, has taken over a complete building at 613 East Tallmadge Avenue, Akron, Ohio. Hale and Kullgren handles sales, design engineering and development work for Aetna-Standard. This latter company recently purchased the Rubber Plastics and Machinery Division of the National-Erie Corp., Erie, Penna. The acquisition of the National-Erie line by Aetna-Standard has necessitated the move of all National Erie engineers, draftsmen and salesmen to Hale and Kullgren's Akron headquarters. There has also been an addition in company personnel to handle this business. Hale and Kullgren have also expanded their Industrial Engineering Department and are currently rebuilding mill rooms of the continuous flow type. The company has also been given a contract for the construction of a large plastics plant. Hale and Kullgren's new building will be capable of housing the engineering staff and drafting room on the first floor, with the administration and sales offices on the second floor.

1953 DRC Meeting Arrangements

Seward G. Byam (DuPont), vice-chairman of the Division of Rubber Chemistry of the American Chemical Society, has announced the appointment of general chairmen to handle arrangements for the 1953 meetings of the division. R. E. Bitter of the B. F. Goodrich Chemical Co., Los Angeles, Calif., has been appointed general chairman of the Los Angeles meeting which will be held on March 18 to 20 at the Hotel Statler in that city. John Andrews of Godfrey L. Cabot, Inc., Boston, Mass., will act as general chairman of the meeting scheduled for the Hotel Statler on May 27 to 29 in Boston, Mass. Herman Boxser of the Western Felt Works, Chicago, Ill., will be general chairman of the meeting to be held in the Hotel Sherman on September 9 to 11 in Chicago. It will be noted that the dates for the Boston meeting have been changed from those previously announced because of conflict in the hotel's program which could not be resolved in any other way.

"Gortite" Neoprene Sleeves

A & A Manufacturing Co., Milwaukee, Wisc., is producing a line of "Gortite" neoprene sleeves and boots for a variety of industrial uses. The units are made to specification without mold charge. Sleeves up to 24 inches in diameter and as long as 30 feet have been fabricated for numerous requirements. The sleeves are said to afford maximum protection to moving parts while overcoming the weaknesses of leather boots. The sleeves are resistant to oils, greases, and water and withstand temperature changes from —45 to 220° F. without cracking. In addition to their wear-resistant qualities a high degree of softness and flexibility permits the compression of Gortite sleeves to fit into tight spots.

1951 Butadiene Production

According to the U. S. Tariff Commission, production of butadiene production in 1951 amounted to 1,221,000,000 pounds, compared with 610,000,000 pounds in 1950. In 1951, 1,221,000,000 pounds, valued at $180,000,000, were sold, against the 602,000,000 pounds which were sold in the previous year at a value of $50,000,000.

U. S. Rubber Cup Grinding Wheel

Development of a new type of cup grinding wheel which retains its sharp cutting edge throughout its service life has been announced by the Mechanical Goods Division of the U. S. Rubber Co. The wheel, the "U. S. Royalite Hard-Shell Cup Wheel", has a hard shell of tough resin-bonded abrasive built around a core of rapid-cutting resin-abrasive construction. This shell, which is 3/16 of an inch thick, resists "mushrooming" or rounding of the wheels' cutting edge. Wear occurs evenly across the entire face of the wheel. It is particularly useful for grinding accurately hard-to-reach corners and complicated shapes. Accurate corner grinding is possible throughout the service life of the wheel because of its even wear, the company states. Preparation for welding, foundry operations, finishing welds and machine shop work are some of the applications for the new wheel. Its over-all diameter is tapered from 6 to 4¾ inches. Its thickness is 2 inches and it is available for three standard types of arbors.

Goodrich Chemical Names Score

Robert E. Score, associated with the B. F. Goodrich Chemical Co. since 1946, has been appointed to handle the sale of Good-rite organic chemicals on the East Coast and in the Southeastern States. He will be located in the company's New York office at 475 Fifth Avenue. Mr. Score was graduated from Bucknell University in 1946, receiving a degree in chemical engineering. He joined Goodrich Chemical the same year as a rubber processing development chemical engineer. In 1949, he entered the chemical sales group. Mr. Score will be the first member of the chemical sales group to be located permanently in the New York office.

Boston Plans Summer Outing

The Boston Rubber Group has completed plans for its annual summer outing. The outing will be held on Friday, June 20th, at the Andover Country Club, Andover, Mass. As in past years, the day will be devoted to a full program of golf, softball, badminton, horseshoes, darts, etc. Evening activities will feature a dinner and the awarding of prizes.

Need any of the basic books on rubber? Use the coupon on page 399.

Corrosion-Resistant Piping

American Agile Corp., Bedford, Ohio, has introduced a complete line of corrosion resistant plastic piping, tubing and ducting for use in industry and agriculture. Piping in various grades of polyethylene and both unplasticized and rigid polyvinyl chloride as well as rigid rubber-resin types can be furnished in diameters up to 6 inches. Ducting in polyethylene is available in an assortment of sizes up to 22 inches in diameter. The line is complemented with a full supply of pipe fittings both of the flexible and rigid types. The complete line of Agile's corrosion-resistant pipe covers a wide range of applications where corrosive liquids are handled, up to a temperature of about 175° F. The ducts permit the safe handling of liquids and gases ranging from dully concentrated hydrofluoric acid to extremely dilute waste waters of various industrial processes. In addition to the outstanding chemical properties the excellent mechanical and electrical properties as well as their light weight make this piping excellent conduit material for various electrical and electronic applications, the company states.

Promotions at General Tire

Howard A. Bellows, associated with the General Tire & Rubber Co. since 1929, has been elected a vice-president of the company and placed in charge of all replacement tire and tube sales. John E. Powers, formerly trade sales manager, has been promoted to general sales manager of plastics and special products. Mr. Bellows was named New York branch sales manager in 1929 and has been operating out of the Akron office since July, 1951, when he assumed the duties of S. E. Poor, former vice-president in charge of retail merchandising. Mr. Powers has been with General Tire since 1934. He was promoted from New York branch manager to special duties on the executive sales staff in 1945, and was named manager of automobile tire sales in 1946. He was promoted to trade sales manager on June 18, 1951. In addition to directing sales of the Plastics Division, Mr. Powers will continue as operating sales head of the company's Athletic Goods Division.

Mansfield Promotes Executives

At the recent annual meeting of the board of directors of the Mansfield Tire & Rubber Co., Mansfield, Ohio, H. B. Soulen, formerly president of the company, was elected vice-chairman of the board while James H. Hoffman, previously executive vice-president, was elected president. G. W. Stephens remains chairman of the board. Mr. Soulen was elected president on January 1, 1949, and had become associated with the company as vice-president and factory manager in May, 1937. Mr. Hoffman started with the company in the Factory Department. A graduate of the Western Reserve Law School he served as legal counsel to the company. He was appointed assistant secretary in 1937, and was elected secretary in 1939. In May, 1951, he was elected executive vice-president of the company.

AIEE SUBCOMMITTEE ON RUBBER AND PLASTICS HOLDS CONFERENCE IN AKRON

The Subcommittee on Rubber and Plastics Industries of the Committee on General Industry Applications, American Institute of Electrical Engineers, held a one-day conference on Electrical Engineering Problems in the Rubber and Plastics Industries at the Portage Hotel in Akron, Ohio on April 28. A number of interesting papers were presented at the conference.

I. E. Andreasen of the Industrial Engineering Department of the General Electric Co., Schenectady, N. Y., delivered a paper on "Adjustable Voltage D.C. Drive for Rubber and Plastics Manufacturing Plants." The speaker noted that in a typical rubber or plastics manufacturing plant between 10 to 20% of the total electric energy that is consumed is direct current. This D.C. power is used for adjustable speed motor drives for calenders, tubers, extruders, strainers, conveyors, tire-builders, bias-cutters and other processing machinery.

In the rubber industry, as in other industries, there is a growing trend toward the greater use of individual adjustable voltage drives for processing machines which require adjustable speed. Individual adjustable voltage drives provide operating features and offer a degree of flexibility that cannot be obtained with constant potential D.C. drives, said the speaker. Economic studies show that in most cases the over-all cost of an adjustable voltage drive is considerably less than the over-all cost of a constant potential drive. The present day availability of packaged adjustable conversion units makes the adjustable voltage drives even more attractive.

All evidence indicates that existing constant potential systems should not be expanded. Long range plans for a gradual shrinking of existing constant potential systems should be initiated. As existing constant potential conversion units are retired they should be replaced with adjustable voltage conversion units.

300 Kw Hewittic Rectifier

N. A. Williams of the Electrical Engineering Division, Goodyear Tire & Rubber Co., delivered a paper on the "300 Kw Hewittic Rectifier" at the conference. Mr. Williams related that during construction of the new Goodyear tire plant in Luxembourg it was decided to purchase a 300 kw mercury arc rectifier from the Hackbridge-Hewittic Co. in England. This rectifier was designed to deliver 250/120V on a three-wire system. Primary voltage was 2300V, 50 cycles. The rectifier was a six phase unit and consisted of eight multi-anode glass bulbs. 125V service was secured by connecting two groups of these bulbs in series to act as a balancer unit.

After installation some troubles were experienced due to voltage surges caused by regeneration of power during slow-down of D.C. motors. Mr. Williams then described tests and a graphic record of these surges and discussed various means which were tried to eliminate them.

"Adjustable Speed Drive Employing Magnetic Amplifier Control" was the title of the paper delivered at the conference by A. W. Harrington of the Louis Allis Co., Milwaukee, Wisc. The speaker said that magnetic amplifier control is ideally suited to adjustable speed drives of the D.C. adjustable voltage type. It provides superior speed regulation over wide speed ranges and eliminates electronic tubes and rotating exciters.

In addition to the drive motor and operator's control station, the packaged drive includes a power unit enclosing the MG set, A.C. and D.C. contactors, selenium rectifiers for excitation, magnetic amplifier, and all other control components.

There are five windings on the magnetic amplifier: two power windings, a control winding, an anti-hunt winding and an IR compensation winding. The speed setting potentiometer on the operator's control station determines the amount of current flowing through the control winding which, in turn, determines the amount of excitation current that can flow through the power windings to the generator field.

Mr. Harrington explained that control of excitation is thereby obtained, adjusting the drive motor armature voltage to obtain desired speed. The anti-hunt winding opposes the control winding and operates only under conditions of change. It prevents overshooting and hunting. The IR compensation winding causes the generator voltage to raise as load comes on, producing superior speed regulation even at slow speeds.

Electronic Control Application

B. G. Wheeler of Cutler-Hammer, Inc., Milwaukee, Wisc., also delivered a paper at the conference. His paper was entitled "Design and Application of Electronic Control for the Rubber Industry." The speaker explained that a prime requisite for satisfactory performance of electronic control is that it must be properly applied. Electronics excels where low power, high impedance signals must be used, especially on photo-electric equipment. It may also be particularly well adapted to the use of conveniently obtained signals, such as controlling the phase shift of grids on a thyratron rectifier by changing the reactance in a coil. Continuous switching with ignitron contactors is another application where electronics does the job best.

Resistors, potentiometers, capacitors, tubes, tube sockets and many miscellaneous components have been developed with control clearances and ruggedness necessary for good, reliable industrial equipment. Electronic equipment for mills is now designed on a unit basis so that each unit may be easily removed, serviced and replaced. It is constructed to be easily accessible, easily maintained and reliable. With adequately trained maintenance men, servicing of electronic equipment ceases to be a problem. Electronic control has become an accepted electrical tool throughout the rubber-plastics industry, adding flexibility to the design and operation of electrical drives.

"The Application of the Beta Gauge to Calendering Processes" by G. B. Foster of Industrial Nucleonics Corp., Columbus, Ohio, was another of the papers delivered at the conference. Mr. Foster explained that the "AccuRay Beta Gauge" is an industrial outgrowth of wartime research in atomic energy. He discussed the construction of the unit, the source of its energy, and its use in industry.

The speaker concluded his talk by saying that the stability, accuracy and reliability of this new measuring method has opened up whole new fields of automatic machine control, giving great promise of further lowering costs and improving quality.

J. C. Hall of the Electric Engineering Division of the Goodyear Tire & Rubber Co., also spoke at the conference. The title of his paper was "Control for a 4-Roll Z-Type Rubber Calender Train." His paper described the electrical controls for a Z-type calender and auxiliaries used in the manufacture of rubberized fabric. The system, known as a calender train, is designed to operate at a maximum speed of 100 Y.P.M.

The drives consist of several separate variable voltage systems, with line speeds synchronized by means of a common motor-operated rheostat. Controlled tension is introduced at several points by means of rotating regulators. There was a thorough discussion of factors leading up to the selection of various components, methods of installation and starting-up procedures. Mr. Hall exhibited a number of photographs which showed installations and several typical circuits.

The conference was also addressed by P. A. Gustafson of the U. S. Rubber Co. Mr. Gustafson spoke on "Ignitron Rectifiers for D. C. Plant Power." The paper was prepared in conjunction with E. L. Smith of the Firestone Tire & Rubber Co.

In his paper, Mr. Gustafson noted that three 600 kw, 250V Excitron rectifier units supply D.C. power to a connected load of 2500 hp in motors on calenders and extruders. Each rectifier unit consists of 6 single anode tanks with main transformer, auxiliary power transformer, excitation system, control panel, circuit breakers, cooling system, and evacuating system. The excitation system consists of an excitation anode energized from a selenium rectifier and a jet ignition device that establishes an arc by throwing a stream of mercury against the excitation anode when energized, the conference speaker explained.

Mr. Gustafson stated that the operating experience has been very good with minimum attention required. Operation of protective devices have been infrequent. Most failures have been of a minor nature such as loss of cooling water pressure or burned out resistors in the excitation anode circuit. During seven years of operation it has been necessary to open only two tanks; one because of defective vacuum seals and the second time to repair a broken insulator. It was approximately two years ago, the speaker declared, that the last tank was opened. At that time, the condition of the anode, grid, mercury and other parts was found to be excellent, he declared.

THIOKOL OPENS POLYMER PLANT IN MOSS POINT, MISSISSIPPI

The third plant in its expanding operations was opened by the Thiokol Corporation at Moss Point, Mississippi, on May 27. The dedication ceremonies were witnessed by approximately 100 company executives, suppliers, customers, military representatives, government officials, and local and state authorities. The firm's other plants are located at Trenton, N. J., and Huntsville, Alabama.

Small groups were taken on guided tours through the new plant by various company personnel who explained the operation of the various units in each building in some detail. The tours were handled by S. W. Martin, vice-president; Joseph S. Jorczak, technical service manager; Edward M. Fettes, research manager, and Dr. H. M. Duvall, a project leader in the research department.

The plant visit was preceded by a luncheon at Longfellow House in nearby Pascagoula, to which the Mayors of Pascagoula and Moss Point and other guests were invited. In the evening, after an elaborate dinner at the Edgewater Gulf Hotel in Biloxi, President Joseph W. Crosby welcomed the guests and expressed his company's appreciation for the interest shown in Thiokol's activities as evidenced by the large attendance from all parts of the country.

Mr. Crosby explained briefly the reason for selecting Moss Point for the new facilities and thanked the local, state and Chamber of Commerce officials who had extended complete cooperation during all phases of the construction work. Short responses were made by these officials who welcomed the plant to their midst and wished it every success.

The plant was designed entirely by Thiokol's engineering staff and was constructed by local labor under the supervision of vice-president Harry R. Ferguson and plant manager Floyd W. Wilson. Armen D. Yazujian, of the Trenton plant, acted as material and equipment expediter throughout the construction work. The layout and design of the various units of the plant incorporate the most modern equipment and flow, heat and other control devices permit almost automatic operation with a minimum staff of workers.

The factory is located on the Gulf of Mexico between Biloxi, Miss., and Mobile, Ala., on the navigable Pascagoula River. Satisfactory sources of water and power are available, with excellent rail and trucking facilities. The plant is expected to add appreciably to the company's output of Thiokol liquid polymers as well as one of the raw base materials formerly purchased from other sources. Operation of the plant will mean sufficient Thiokol liquid polymers to meet the increased demand of both the military and civilian industry.

The Chemical Division of Goodyear has announced the development and production of a new type of paint resin, Pliolite S-5B. It is said to be comparable in quality to the Pliolite S-5 milled resin, yet it is lower in price and more efficient in processing.

Shown above at ceremonies marking the opening of the new Thiokol plant at Moss Point, Miss., are (left to right): Harry R. Ferguson, Thiokol vice-president in charge of development and production; A. L. Thomson, Mayor of Moss Point; J. W. Crosby, Thiokol president; A. P. Moran, president of the Jackson County Board of Supervisors; and S. M. Martin, Thiokol vice-president in charge of sales.

Asks Discount Appeal Dismissal

Government attorneys have asked a Federal judge sitting in Washington, D. C., to dismiss an industry suit to upset the Federal Trade Commission's quantity limit discount rule on manufacturers' sales of replacement tires and tubes. The judge was also asked to set aside two previous orders staying the effective date of the ruling, originally set to take effect on April 7. The FTC ruling limited discounts granted on the basis of volume sold to a single carload in each separate sale of tires and tubes. FTC based the ruling on findings that big volume buyers enjoyed an unfair advantage over small, independent dealers by virtue of the larger discounts available to them. FTC acted under a previously unused section of the Clayton Anti-Trust Act authorizing quantity limits as an anti-monopoly weapon. Major tire manufacturers were among the 19 plaintiffs which have sought to have the Federal court void the FTC ruling on the grounds that the ruling and the procedure issuing it were invalid.

Jefferson Ethylene Carbonate

Jefferson Chemical Co., New York, N. Y., has announced pilot plant production of ethylene carbonate. The new chemical is an odorless, colorless, low-melting solid and is non-hygroscopic and non-corrosive. Company officials said it has outstanding properties as a solvent for acrylonitrile polymers, lignin, nitrocellulose, nylon, cellulose acetate and other polymeric materials. It is valuable in hydroxyethylation where equipment for handling gaseous ethylene oxide is not available. It is said to react with aliphatic amines, thereby forming carbamates (urethanes). These, officials noted, offer a new route to the preparation of farm chemicals, resins, fungicides, pharmaceuticals and plasticizers.

Bakelite Co. Names Sward

Bakelite Co., a division of the Union Carbide and Carbon Corp., New York, N. Y., has appointed Arnold F. Sward as manager of its newly-created Consumer Products Department. In his new duties involving all Vinylite plastic film and sheeting as well as other similar materials produced from Vinylite resins, Mr. Sward will be responsible for the operations of the Consumer Film and Sheeting Division and the Calendering Materials Division. Bakelite has also announced the appointment of J. R. Price to the newly-established post of merchandise manager, Consumer Products. J. B. Knowles succeeds Mr. Price as manager of the Consumer Film and Sheeting Division, concerned specifically with the operations of Vinylite plastic film and sheeting. C. D. Schuman has been named to succeed Mr. Sward as manager of the Calendering Materials Division of the company.

Presses for Fiberglas Molding

A new line of medium-priced plastic presses especially designed for Fiberglas molding has been introduced by the Erie Engine & Manufacturing Co., Erie, Penna. Developed in close cooperation with one of the country's leading Fiberglas molders, the presses are available in three standard platen sizes—32 x 36 inches, 42 x 49 inches, and 40 x 76 inches. In connection with the new presses, Erie Engine states that its engineers offer a complete service to present and prospective Fiberglas molders which involves not only correct installation of presses, but expert and experienced help in all angles of the production of Fiberglas molded parts and finished products.

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LITCHFIELD WARNS AGAINST COMING SHORTAGE OF RUBBER

P. W. Litchfield, chairman of the board of the Goodyear Tire & Rubber Co., in another of his Notes on America's Rubber Industry, New Series No. 18, entitled "A Preventive Program to Meet a Coming Rubber Shortage," urged that a program be formulated to meet an expected shortage of rubber. He recommended expansion of the nation's synthetic rubber industry, creation of a synthetic rubber stockpile of 200,000 tons and additional plantings of natural rubber in the Western Hemisphere, to yield 150,000 more tons annually, as steps in that direction.

Mr. Litchfield declared that we should begin now to lay out a national program of synthetic rubber expansion. It should be developed in such a manner as to assure the presence of additional capacity in advance of the actual need. Existing plants should be made ready while there is still time for orderly thinking. This preventive approach to the problem of growing demand will spare us the ordeal of more drastic remedies later on, he stated.

Present plants can be modernized to provide capacity for the reserve stockpile and this program can be put into effect quickly as a cushion against the time when rubber demand exceeds supply, he said. The Goodyear board chairman pointed out that natural rubber is a highly volatile commodity which over the years has witnessed an almost incessant game of leap frog between supply and price.

These violent fluctuations, he emphasized, strike hard at the American pocketbook while our national attitude toward rubber veers sharply between complacency and near panic. Today's improved rubber outlook, it was pointed out, follows close on the heels of the drastic shortage which began shortly after Korea and continued through 1951, with natural rubber prices soaring from a low of 18c per pound to a high of 84c at the peak.

This peak, said Mr. Litchfield, cost American consumers millions and millions of dollars as well as great inconvenience; and a substantial part of this could be charged to our own failure properly to utilize our national facilities for the production of synthetic rubber. Mr. Litchfield stated that "if the current easing up period induces a recurrence of our habitual weakness for procrastination and indecision in matters of national rubber policy, then we are due for another rude awakening. And this time, I mean very rude."

Current available supply of rubber to meet world needs, said Mr. Litchfield, is 2,750,000 long tons annually. It is made up of 1,000,000 tons of synthetic capacity and 1,750,000 tons from existing stands of natural rubber trees. World requirements for 1952 will be approximately 2,335,000 long tons, thus leaving a statistical surplus of around 415,000 tons.

But, warned Mr. Litchfield, judged by historic trends and forces now in evidence, total requirements are going to continue to climb. By 1955, world requirements of new rubber may be 150,000 tons in excess of today's total capacity. By 1960, it is accepted in informed circles, world requirements will be not less than 400,000 long tons and possibly as much as 1,500,000 long tons in excess of our present potential capacity.

So, he concluded, the next big squeeze is not too far around the corner. Even with increased planting of natural rubber, this source alone cannot meet our growing needs, and we can only look to synthetic rubber production for the major part of the answer.

Chlorophyll-Treated Insole

Firestone Tire and Rubber Co., in conjunction with the Boston Fabrics Corp., Boston, Mass., has developed a new chlorophyll treatment for Foamex insoles. The insoles are resistant to color "bleeding" and protect the shoe against absorbing foot odors by neutralizing these odors before they form. Firestone Foamex chlorophyll-treated insoles are made for both men's and women's shoes.

Goodrich Testing New Tires

Passenger car tires capable of running safely at sustained speeds of more than 100 miles an hour have been developed and are currently being tested by the B. F. Goodrich Co. Unlike hard-riding, high pressure racing car tires, the new tires are low pressure, cushion type and do not sacrifice comfort for speed. To produce safe tires for high speeds, the company increased the adhesion between tread and carcass and introduced special reinforcement to reduce the degree of tire flexing. Improved adhesion resists the centrifugal force which at high speed can tear conventional treads from the tire carcass. Testing of the new tires is being done at speeds as high as 135 miles an hour on a special indoor testing machine which simulates a road surface, and over a controlled stretch of highway in the Southwest.

Borrows Additional $1,000,000

Thermoid Co., Trenton, N. J., has notified the New York Stock Exchange that it has borrowed $1,000,000 for working capital from the Massachusetts Mutual Life Insurance Co. and the Connecticut Mutual Life Insurance Co. Thermoid borrowed the money at 4½%. The loan comes due on August 15, 1956. Thermoid has also announced that it has repaid $200,000 on another $1,000,000 loan which it had obtained from the two insurance companies some six months ago. This debt is secured by a note of the General Tire & Rubber Co., Ltd., to which Thermoid has sold its Canadian subsidiary, Joseph Stokes Rubber Co., Ltd.

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CITES U.S. PARTICIPATION IN INTER-GOVERNMENTAL CARTELS

In a recent address before the National Association of Purchasing Agents in Atlantic City, N. J., John L. Collyer, president of the B. F. Goodrich Co., charged that the United States is now participating in inter-governmental commodity cartels "that have never been submitted to Congress for ratification." Mr. Collyer described this government's International Materials Conference (IMC) as a mechanism which could be used to force a basic revision of America's competitive economy. He termed IMC a "super cartel" and said it is in reality a controlled materials program on an international scale "with all the defects inherent in all such schemes, including ultra-conservative estimates of production and varying degrees of overstatement of requirements."

Autonomus committees of the IMC, Mr. Collyer said, apportion available supplies of some scarce, essential raw materials of the free world; direct, in a general way, the usage each country may make of such materials, and seek to stabilize prices. He pointed out that IMC controls have already been extended over such materials, as sulfur, nickel, copper, zinc, cobalt, etc.

"Behind a veil of secrecy, decisions reached by the IMC—decisions which may cause great strains within our domestic economy—may go unchallenged until the damage is done. As one example, U. S. manufacturers are forced to reduce automobile production because of a lack of copper while other countries are allocated enough copper to increase their automobile production," Mr. Collyer stated. He explained that since IMC already has the machinery, it would be easy to continue it indefinitely after the end of the materials shortages.

Mr. Collyer said that maybe the mechanism through which planners, already working behind the scenes on an international scale, could force a basic revision of our American competitive economy. He endorsed current legislation now being considered in Senate and House committees to limit the authority of the executive branch of the government to participate in cartels.

He also pointed out that the peoples in the Far Eastern rubber-growing areas would be handicapped in their fight against communism and retarded in their efforts to raise living standards if an international cartel in rubber were to be established. Leaders in certain nations, Mr. Collyer explained, believe that it may be possible to eliminate or reduce the uncertainties of rubber production, consumption and price through inter-governmental agreements. But instead of restricting production we should make every effort to expand consumption. High prices restrict the use of rubber, low prices encourage its use, he said.

Mr. Collyer also observed that every attempt to interfere with the normal functioning of the free market for rubber has failed. Perhaps the most important long-range result of previous cartels, he declared, was the great stimulus given to the search for materials that could replace rubber in essential products.

Latex Applications of Pluronics

Wyandotte Chemicals Corp., Wyandotte, Mich., recently introduced a series of nonionic surfactants, prepared by condensing ethylene oxide with a hydrophobic base formed by the condensation of propylene oxide with propylene glycol. These surfactants are being marketed under the tradename of "Pluronics," and at least four types are currently available. According to the company, all of the Pluronics apparently are satisfactory stabilizers for latex emulsions, with Pluronic L62 somewhat superior to the others for protecting the latex against freezing. A useful concentration is said to be 1.0 to 2.5%, based on the weight of the emulsified phase. Another in the series, Pluronic F68, is said to contribute a softening or plasticizing action to vulcanized latex film. This latter type may also be suitable as a dispersing agent for carbon black in rubber compounds. For this use, 1 to 2 parts of Pluronic F68 and 20 parts of carbon black are made into a slurry, and 50 parts of this slurry are then used with each 100 parts of rubber. Further data on the Pluronic series can be secured from the company's Development Department.

URW to Seek Pay Increase

It has been reported that the Policy Committee of the United Rubber Workers, C. I. O., meeting recently in Cleveland, Ohio, has decided to seek an increase of 20c per hour in present pay scales for 200,000 rubber workers, representing an increase of about 10%. The drive for more pay was heightened when the union and the Firestone Tire & Rubber Co. agreed to begin contract and wage discussions on June 25. Firestone is the second of the "big four" rubber companies to receive notice that the union plans to renegotiate contracts. Earlier, the union notified Goodrich, and talks were scheduled to begin on June 9. L. S. Buckmaster, URW president, has also notified U. S. Rubber that the union would like to get pay talks started as soon as possible, and indications are that he will make a similar request of Goodyear. Besides the pay raise, the union will seek improved pensions and insurance programs, productivity pay increases and other benefits.

Akron University Building Fund

Goodyear Tire & Rubber Co. has pledged $250,000 to the University of Akron's $2,575,000 building fund. The pledge was presented jointly by chairman of the board P. W. Litchfield and president E. J. Thomas to M. S. Richardson, chairman of the university's building fund committee, and Dr. Norman P. Auburn, university president. Mr. Thomas is a member of the university board of directors. It was the first corporate gift in the drive to raise money for three new buildings on the Akron University campus. The committee hopes to raise $1,500,000 from Akron business, industry, alumni and friends of the school. A .45 mil building levy approved by the voters last Fall will produce $1,075,000 of the total needed.

Rubber On New Superliner

The propeller shafts on the $70,000,000 liner "United States" have partial rubber covering by the Manhattan Rubber Division, Raybestos-Manhattan, Inc. A crew of nine men was sent from the company's plant at Passaic, N. J. to do the work at the yards of the Newport News Shipbuilding and Dry Dock Co. at Newport News, Va., while the big ship was being built. The new superliner, largest and fastest passenger ship ever built in this country, will make her maiden voyage from New York on July 3 to Havre and Southhampton under the flag of the United States Lines. Length is 990 feet with a beam of 101½ feet. She will have a speed of more than 30 knots. The rubber covering was applied by Manhattan Rubber to prevent corrosion of the propeller shafts. These shafts are of tremendous size to withstand terrific torque strain. Manhattan Rubber also supplied other items, such as rubber hose and V-belts for construction and maintenance.

Local Arrangements Committee

J. G. Augenstein (U. S. Rubber Reclaiming) has been appointed general chairman of the Local Arrangements Committee for the 61st meeting of the Division of Rubber Chemistry, American Chemical Association, which will be held at the Statler Hotel in Buffalo, N. Y., October 29 through 31. Russell Schutz (U. S. Rubber Reclaiming) has been named chairman of the Housing and Information Committee, while Charles Miserentino (Dunlop Tire) has been placed in charge of registration. Paul Sick (Hewitt-Robins) has been named to head the Equipment, Program and Meeting Rooms Committee. Robert Mack (Buffalo Weaving & Belting) will handle publicity. Finances will be taken care of by a committee headed by Charles Smith (U. S. Rubber Reclaiming). Donald D. Bradley (Commercial Chemicals) has been appointed chairman of the Banquet and Entertainment Committee, while William Sauter (DuPont) will handle plant visitations and transportation. Ladies' entertainment will be handled by Mr. C. H. Peterson and Mrs. R. Cowen.

Offers Three New Ethylenimines

Monomer-Polymer, Inc., Leominster, Mass., has developed a series of chemically reactive ethylenimine derivatives. The company is offering the following for research and development study: e'hylenimine, N-ethylenimine, N-methylethylenimine, 2-methylethylenimine, and 2,2-dimethylethylenimine. According to the company, these monomers have application in the preparation of rubber vulcanizers and accelerators, oil additives, textile additives, and pharmaceuticals.

New Goodrich Aircraft Tire

A new aircraft tire developed by the B. F. Goodrich Co. has successfully completed the Air Force program for testing jet aircraft tires under conditions simulating landings at 250 miles per hour. The company states that ordinary aircraft tires fail under the terrific strains imposed by the test after a few landings. Even specially designed tires have difficulty surviving over five or six simulated landings. However, even after completing the required number of 50 landings, the new tires were said to be good for additional landings. High speed performance is accomplished without sacrificing low tread wear, high load supporting capacity and good resistance to low temperatures. The project was accomplished at the Air Research and Development Command, Wright Air Development Center, Dayton, Ohio. According to Goodrich, the design principles of the new aircraft tire are similar to those incorporated in a new tubeless passenger car tire recently announced by the company.

Resumes Full-Scale Production

Seiberling Rubber Co. has resumed full-scale production, six days per week, on passenger and truck tires. Like others in the industry, Seiberling Rubber built up large inventories during the winter in preparation for spring demand, then cut back tire production to five days weekly early in May when the sales increase was slow in coming. J. P. Seiberling, president of the company, explained that dealers held off buying because they expected a drop in prices. Mr. Seiberling said that prices of tires should remain firm at least until late summer. Sales in April and May have been "substantially" higher than the first quarter rate and further improvements are expected through June and the third quarter.

Standard Machinery Expands Staff

Standard Machinery Co., Mystic, Conn., has announced two new important additions to its engineering staff. Nathaniel Little, a graduate of the University of Montana, assumes his new position from an engineering affiliation with the General Dynamics Corp. Earl King has joined Standard Machinery from the Turbine Generator Division of the General Electric Co. His basic engineering training was acquired at the New York State School at Troy, N. Y. Standard Machinery officials said the staff additions are due to the widespread acceptance of Davis-Standard extruders and the expanding requirements of the rubber, plastic and other industries.

Witco Oil Black Division

Witco Chemical Co., New York, N. Y., has organized an Oil Black Division which includes the Continental Carbon Co. plant in Sunray, Texas, and the Continental Oil Black plant in Westlake, La. J. H. Wishnick and R. A. Reinke have been appointed manager and general superintendent, respectively, of the new division.

NEWER AUTOMOBILES CALL FOR SUBSTANTIAL TIRE IMPROVEMENT

Last year's tires fail too quickly on the newest automobiles, and motorists and car manufacturers have demanded substantial improvement in their tires to meet the new requirements of the increased power of their cars, said Carl E. Kayser, president of the Columbian Carbon Co., in announcing the new carbon black, Statex 125. The new black is said to add 20 to 30% to the wear resistance, and hence service life, of tire rubber.

Statex 125 is now in production, he said, and is at present going into tires for only the highest powered of the new cars. Growing output is expected later in the year to supply the new product in sufficient quantities to allow it to be used in wear-resistant tires for all cars that require its high resistance to wear.

The problem, Mr. Kayser explained, developed because cars of 100 or more horsepower wear out tires too fast. Although a driver notices tire slips only when he starts or stops suddenly, his tires slip with respect to the pavement all the time he is driving, and this slipping is the principal cause of wear of the tire tread.

In normal driving the slip may be 1 to 3%. When speeds and power go up, this slip increases and the tire wears out faster. The sharp rise of power in the latest car models has about doubled slip and this has pushed up the wear on tires unexpectedly and required much improved tires quickly. Columbian Carbon has been cooperating with leading rubber manufacturers to solve this problem of better tire wear, Mr. Kayser said, because the most effective way to make rubber wear better is to use special carbon black in compounding it.

As a result of this cooperation, Columbian Carbon has developed an entirely new type of carbon black that gives tire treads remarkably higher resistance to wear. Road tests made by tire manufacturers have shown that Statex 125 adds 20 to 30% longer life to tires than the best carbon blacks made heretofore, he said.

Process Carefully Controlled

The new carbon black is made by a modified furnace process from the heavy residual oils of the petroleum industry. In effect, this process consists of burning the heavy oils in a furnace with so little air that large amounts of soot are produced in the flame and collected for use. The entire process is carried out under the most careful control to insure uniform production of black of the required characteristics.

The new black, designated as SAF (super abrasion furnace), can be worked into tire tread compounds in the usual way and on the customary fabricator's machines. Tire tread stock compounded with Statex 125 shows superior physical and processing characteristics in extensive tests under production conditions. Continuing road tests of the new tires have extended over scores of thousands of miles and show them to have 20 to 30% longer life than the tires previously available which were made with customary carbon blacks, Mr. Kayser declared.

Emery Sales Representatives

Emery Industries, Inc., Cincinnati, Ohio, has announced a new program of territorial expansion to insure better service to users of company products. A. R. McDermott, formerly of the Chicago district office, has been given responsibility for all sales in Texas, Louisiana, Oklahoma and Arkansas. N. F. Reinert, previously with the Development and Service Department, has been assigned to the Chicago office where he will work under D. R. Eagleson, who is in charge of that office. F. L. Ekstrand, formerly associated with the Borne Scrymser Co. in a sales capacity, has joined Emery's sales staff. He has been assigned to the Philadelphia office to cover eastern Pennsylvania and southern New Jersey, as well as parts of Philadelphia.

More News in Brief

The Technical Products Division of E. F. Drew & Co., Inc., New York, N. Y., has announced the availability of a new reference chart on fatty acids and their derivatives.

Goodrich has made available a new career booklet for college students entitled "Your Future with B. F. Goodrich." The booklet outlines opportunities for graduates by describing the operations of all the company's divisions and subsidiaries in research and development, engineering, production, management, time and motion study methods, sales, purchasing, finance, accounting and control.

J. P. Stevens & Co., Inc., has announced the removal of its offices to the Stevens Building, Broadway and 41st Street, New York 36, N. Y. The move consolidates all the New York offices.

A "Public Interest Award" for exceptional service to safety has been presented to Firestone by the National Safety Council in recognition of its national program promoting highway safety.

Corona Insulated Wire Co., Inc., has announced the removal of its factory and offices to new and larger quarters at 759 East 43rd St., Brooklyn 10, N. Y. The telephone number is GEdney 4-3977.

Kenrich Corp., New York, N. Y., has issued a new technical bulletin covering the use of Kenflex A in Butyl rubber. Copies are available on request to the company.

Midwest Rubber Reclaiming Co., East St. Louis, Ill., has made available a folder on prices and analyses of Midwest reclaims.

Dayton Rubber Co., Dayton, Ohio, is utilizing a Beta Ray Gauge in producing rubberized and calendered fabric as a quality control step.

Midwest Rubber Reclaiming Co. has announced a reduction in the price of "Butex" from 13½ to 13c per pound.

WASHINGTON ELECTS OFFICERS; HEARS RANDS TALK ON GUAYULE

The May 21st meeting of the Washington Rubber Group held in the Auditorium of the PEPCO Building in Washington, D. C., featured an election of officers for the 1952-53 season and a talk on "Production Research on Guayule and Latin American Hevea Rubbers" by Dr. Robert D. Rands, head agriculturalist, Division of Rubber Plant Investigations, U. S. Plant Industry Station, U. S. Department of Agriculture, Beltsville, Md. The following members were elected to office for the coming season.

President, Norman Bekkedahl (National Bureau of Standards); *Vice-President*, George Riveire (Goodyear); *Secretary*, William J. McCarty (Synthetic Rubber Division, RFC); *Treasurer*, Juan C. Montermoso (OQMG). *Recording Secretary*, Ethel Levene (Bureau of Ships).

Dr. Rand's talk summarized the Department of Agriculture's research on guayule rubber production in relation to the defense effort. The speaker noted that at the present time 20 to 25% of the rubber consumed by the United States must be natural rubber. Thus, the cultivation of guayule by the United States is purely a strategic move enabling us to supplement imported natural rubber.

Guayule's value as an extender would necessitate the existing stockpile of natural rubber lasting four or five years, since the cultivation of guayule to a mature crop takes that long. This was brought out during World War II, the speaker said. Unfortunately, the program during World War II was thought to be a financial and economic failure since the war ended before the first guayule crop could be harvested.

The presentation of the remarkable developments of recent years in the domestication of this desert shrub in southwest Texas and northern Mexico through a program of cross-breeding, and some of the recent government tests on pure guayule truck tires concluded this portion of Dr. Rand's talk.

The speaker then summarized the history and progress of the department's cooperative research and development program on Hevea rubber, now under Point 4 auspices, in eleven Latin American countries. One of the purposes of this program, he emphasized, is to increase the production of natural rubber in this hemisphere, and thereby raise the economic standards of these countries. The development of disease-resistant Hevea strains is one of the principal efforts of the current program. At the same time, encouragement is given the small landholder to cultivate Hevea rubber. Dr. Rands illustrated his talk with many interesting color slides.

Paracril 18-80 Available

Naugatuck Chemical Division, U. S. Rubber Co., has announced that it is now in a position to offer Paracril 18-80 for use in civilian as well as in military products. Previously, the company had requested DO coverage for Paracril 18-80. If emergency conditions develop, rated orders will again be given preferential treatment.

CONNECTICUT HEARS POLLACK ON PLASTICIZERS FOR ELASTOMERS

Approximately 80 members and guests of the Connecticut Rubber Group attended the May 9th meeting held at the United Illuminating Co. in New Haven, Conn. Principal speaker of the evening was Dr. Maxwell A. Pollack, chemical consultant for the Hardesty Chemical Co. Dr. Pollack spoke on "Plasticizers for Elastomers." A movie, "The Story of Neoprene," was shown at the meeting through the courtesy of E. I. du Pont de Nemours & Co.

In his address, Dr. Pollack traced the development of the plasticizer industry showing the increasingly important position of the synthetic organic esters. The physical basis for plasticizer action was then discussed in detail, with particular attention on the roles played by Van de Waal's (secondary valence) forces and steric factors. This was followed by a discussion of practical aspects of compounding, giving criteria for selection of plasticizers. The importance of proper laboratory and actual service tests was stressed.

Considerable attention was given to the very important property of low temperature flexibility. It was demonstrated that the suitability of plasticizers for this purpose can be predicted from three characteristics, namely, compatibility, viscosity and viscosity index. A study of the relation between freezing point of the pure plasticizer and freezing point of the plasticized elastomer showed that there was no direct, primary relationship, and that eutectic behavior was commonly encountered. This pointed up the great value of the use of properly selected blends of plasticizers in the achievement of extreme low temperature performance, the speaker asserted.

Dr. Pollack concluded his talk by a presentation of the currently used low temperature plasticizers for different elastomers and current outstanding test results.

American Cyanamid Acrylamide

American Cyanamid Co., New York, N. Y., has announced a new acrylic monomer, "Acrylamide," which is now available in trial lots. Acrylamide is a crystalline product with comparatively long shelf life and easily-gained polymerization and copolymerization. Potential applications for the polymers and copolymers of Acrylamide include the preparation of adhesives, dispersing agents, thickening agents, surface coatings, synthetic leathers and rubbers, and finishing agents for paper and textiles. Modification of acrylonitrile fibers by incorporation of the product is said to produce an approved affinity for acid dyes. Acrylamide's reactive double bond readily permits the addition of a variety of compounds such as alcohols, amines, mercaptans and dienes. It is reactive to formaldehyde, forming methylolacrylamide or methylenebis acrylamide. This general reactivity makes Acrylamide of value as a chemical intermediate as well as a monomer.

Simmons Named Goodyear Medalist

Dr. H. E. Simmons

Dr. H. E. Simmons, recently named as consultant in the Training Division of the Goodyear Tire & Rubber Co., has been chosen Goodyear Medalist for 1952 by the Division of Rubber Chemistry of the American Chemical Society. He will deliver the Goodyear Lecture at the Fall Meeting of the division which will be held on October 29 to 31 at Buffalo, N. Y. President emeritus of Akron University, Dr. Simmons was born in 1885 at Leroy, Ohio. A graduate of Buchtel College and the University of Pennsylvania, he received his B. A. degree from the former (a forerunner of Akron University) and his M. S. from the latter. He holds honorary doctor of science and doctor of law degrees from Wooster College and the University of Toledo. From 1906 to 1908, Dr. Simmons served as an assistant professor of chemistry at Buchtel College. He also served as an instructor in qualitative analysis at the University of Pennsylvania. In 1910, Dr. Simmons was named professor of chemistry at Buchtel College, and in 1933 was appointed president of the University of Akron. Dr. Simmons is the author of many technical articles and is associated with many scientific and fraternal groups.

Named Agent for Loomis Talc

Whittaker, Clark & Daniels, Inc., New York, N. Y., has been named distributor of Loomis Fibrous Talc by the W. H. Loomis Talc Corp., Gouverneur, N. Y., in Massachusetts, Rhode Island, Connecticut, New Jersey and the southern yart of New York State. Whittaker stocks Loomis Fibrous Talc in their South Kearny, N. J., plant. The classification as fibrous refers to the appearance of the particles with their long, needle shaped outline and blunt ragged edges as seen under a microscope. This type of talc permits an interlacing of the particles in industrial applications. The talc's extreme whiteness and high reflectance makes it ideal as an extender and filler in rubber, plastics, surface coatings, paints, paper, lacquers and ceramics. Loomis Fibrous Talc is said to have a greater wetting property than the more slippery types.

ACS TRENTON SECTION HEARS PAPER ON VINYL PLASTISOLS

The May 13th meeting of the Trenton Section of the American Chemical Society held in Trenton, N. J., featured a paper on "Vinyl Plastisols" by M. J. Kleinfeld of the Naugatuck Chemical Division, U. S. Rubber Co. The speaker noted that within the last eleven years, the production of vinyl resins in this country has risen from an almost negligible amount in 1941 to nearly 400,000,000 pounds produced last year. About 80% of this total was polyvinyl chloride and its copolymers.

Mr. Kleinfeld outlined procedures in compounding a plastisol and the conversion of the plastisol into a finished product. Some of the ways in which this is accomplished such as slush molding, centrifugal molding, injection molding, casting, dip molding, spread coating and in the manufacture of unsupported film and sheeting were all discussed by the speaker.

Attention was also paid to the production of vinyl foam. Mr. Kleinfeld stated that vinyl foam can be made from plastisols by the addition of chemical blowing agents. These cellular vinyl materials are excellent thermal insulators, he said, and they can be made with a completely closed cell structure suitable for buoyant applications.

Firestone Dri-Charged Battery

Firestone Tire & Rubber Co. has introduced a new "Dri-Charged" battery that can be manufactured, shipped, warehoused and delivered in a dry state to the customer. The new battery is made possible by the development of a new glass (diatomaceous-earth-Fiberglas) separator and an acid bottle (polyethylene plastic) that holds the electrolyte or battery acid indefinitely. The new battery, when activated by the addition of acid, delivers all of its life to the customer. The battery, at point of manufacture, is built with fully-charged plates and, in the dry state, will retain full strength for years, the company states. Because it is dry, the battery can be sealed in an ordinary pasteboard container and stored indefinitely on the dealer's shelves along with other non-perishable merchandise. The acid, likewise, can be stored indefinitely in convenient quart-size plastic bottles by the battery dealer. Upon delivery to the customer, the battery is "born" when the battery acid is poured into the battery cells. The dry battery at this point snaps to life, and from this time on, becomes the same as an ordinary wet storage battery.

Marbon Builds New Warehouse

Marbon Corp. has announced the completion of a new warehouse at Plant II in Gary, Ind. The new 23,000 square foot warehouse, with both track spur and highway facilities, will assure continuance of the company's same day shipment service on receipt of order. Marbon Corp., a subsidiary of Borg-Warner, manufactures high styrene resins, rubber-to-metal adhesives, paint chips and paint resins.

BUFFALO-ONTARIO JOINT MEETING FEATURES BRIDGWATER ADDRESS

The 11th International Meeting of the Buffalo Rubber Group and the Ontario Rubber Section of the Chemical Institute of Canada was held on May 16th at the General Brock Hotel, Niagara Falls, Ont., Canada. Principal speaker at the joint meeting was E. R. Bridgwater, sales director of the Rubber Chemicals Division, E. I. du Pont de Nemours & Co., Inc. Mr. Bridgwater presented a paper on "Compounding Reclaim with New Elastomers for High Quality at Low Cost," which had been prepared by M. F. Torrence and H. G. Schwartz of DuPont's rubber laboratory. This paper appears in full elsewhere in this issue.

Mr. Bridgwater noted that too often reclaim is omitted from consideration as a basic elastomer and is thought of merely as a diluent for other rubbers. Yet, he noted, whole tire and other reclaims have properties superior to those obtained with some of the more widely used elastomers. Among these properties are its resistance to deterioration caused by either heat or ozone. Furthermore, he emphasized, reclaim is low in cost. Like all other materials it has its limitations, and like all other elastomers it must be compounded to develop its maximum qualities.

The speaker reported on the effect of compounding reclaims with other elastomers and indicated some unexpected differences between the effects of various new elastomers. It was also shown that the addition of small amounts of a new elastomer to reclaim may adversely affect certain properties of a compound, whereas larger amounts would have a highly beneficient effect.

Mr. Bridgwater reported that a study has been made of the effects of blending natural rubber, GR-S (LTP) and Neoprene Type GN-A with whole tire reclaim. As judged by the over-all qualities of the resulting vulcanizate, Neoprene Type GN-A appears to be the most satisfactory elastomer to blend with reclaim. Such blends show an outstanding increase in resistance to ozone cracking, weathering and cut growth, a substantial increase in tensile strength, particularly after a period of accelerated aging, and a slight decrease in heat build-up. Blends in which half of the elastomer content is derived from neoprene appear to be the most attractive and such blends can be extended with additional black and oil without a significant loss in properties, he concluded.

Coming Events in the Rubber Industry

June 20. Akron Rubber Group, Outing, Firestone Country Club, Akron, Ohio.

June 20. Boston Rubber Group, Summer Outing, Andover Country Club, Andover, Mass.

June 23-27. A.S.T.M. Fiftieth Anniversary Meeting, Hotels Statler and New Yorker, New York, N. Y.

June 26. Rhode Island Rubber Club, Outing, Metacomet Golf Club, East Providence, R. I.

June 27. Detroit Rubber and Plastics Group, Outing, Forest Lake Country Club, Pontiac, Mich.

June 27. Washington Rubber Group, Summer Outing, Annapolis Roads Club, Annapolis, Md.

July 22. Buffalo Rubber Group, Outing, Transit Valley Country Club, Buffalo, N. Y.

July 25. Chicago Rubber Group, St. Andrews Golf Club, Chicago, Ill.

Aug. 5. New York Rubber Group, Golf Tournament, Baltusrol Golf Club, Springfield, N. J.

Aug. 10. No. California Rubber Group, Summer Outing, "Old Hearst Ranch", Pleasonton, Calif.

Aug. 22. Philadelphia Rubber Group, Summer Outing, Cedarbrook Country Club, Philadelphia, Penna.

Sept. 4. No. California Rubber Group, Elks Club, Berkeley, Calif.

Sept. 8-11. A.S.M.E., Fall Meeting, Chicago, Ill.

Sept. 9. Connecticut Rubber Group, Outing.

Sept. 11. So. Ohio Rubber Group, Engineers Club, Dayton, Ohio.

Sept. 14-19. A.C.S., Annual Meeting, Atlantic City, N. J.

Sept. 25. Ft. Wayne Rubber and Plastics Group, Hotel Van Orman, Ft. Wayne, Ind.

Oct. 3. Detroit Rubber and Plastics Group, Detroit-Leland Hotel, Detroit, Mich.

Oct. 7. Los Angeles Rubber Group, Hotel Mayfair, Los Angeles, Calif.

Oct. 9. No. California Rubber Group, Elks Club, Berkeley, Calif.

Oct. 17. Boston Rubber Group, Hotel Somerset, Boston, Mass.

Oct. 24. New York Rubber Group, Henry Hudson Hotel, New York, N. Y.

Oct. 29-31. Rubber Division, A.C.S., Fall Meeting, Hotel Statler, Buffalo, N. Y.

Nov. 6. No. California Rubber Group, Elks Club, Berkeley, Calif.

Nov. 11. Los Angeles Rubber Group, Hotel Mayfair, Los Angeles, Calif.

Nov. 14. Connecticut Rubber Group, Fall Meeting.

Dec. 4. Ft. Wayne Rubber and Plastics Group, Hotel Van Orman, Ft. Wayne, Ind.

Dec. 12. Boston Rubber Group, Hotel Somerset, Boston, Mass.

Dec. 12. Detroit Rubber and Plastics Group, Christmas Party, Detroit-Leland Hotel, Detroit, Mich.

Dec. 12. New York Rubber Group, Xmas Party, Henry Hudson Hotel, New York, N. Y.

Dec. 13. So. Ohio Rubber Group, Miami Valley Golf Club, Dayton, Ohio.

Dec. 16. Buffalo Rubber Group, Xmas Party.

Mar. 18-20, 1953. Rubber Division, A.C.S., Hotel Statler, Los Angeles, Calif. (In conjunction with 122nd meeting of A.C.S.).

May 27-29, 1953. Rubber Division, A.C.S., Spring Meeting, Hotel Statler, Boston, Mass.

Sept. 9-11, 1953. Rubber Division, A.C.S., Fall Meeting, Hotel Sherman, Chicago, Ill.

ASTM Standards Supplements

The American Society for Testing Materials, 1916 Race St., Philadelphia 3, Penna., has announced the publication of the 1951 Supplements to the 1949 Book of ASTM Standards which is issued triennially. With the 1949 Book of ASTM Standards and the 1950 Supplements, these 1951 Supplements give in their latest form all specifications, tests, definitions, etc., excepting the chemical analysis of metals. The 1951 Supplements in six parts can be obtained for $21 for the set or $3.50 for each part.

Ohio-Apex Tributyl Phosphate

Ohio-Apex, Inc., a division of the Food Machinery and Chemical Corp. of Nitro, West Va., has announced the production of tributyl phosphate in commercial quantities. An odorless, colorless liquid, tributyl phosphate is said to be an excellent antifoaming agent in the production of water soluble adhesives, rubber latex paints, casein solutions and inks. Water-white tributyl phosphate can be obtained direct from the Nitro plant or through the company's agents in most major cities, Ohio-Apex stated.

St. Clair Expanding Plant

St. Clair Rubber Co., Detroit, Mich., has bought a factory building at Marysville, Mich. and plans to add 90 to 120 workers as the result of increased regular and defense production. St. Clair Rubber was recently awarded a "several million dollar" contract by the U. S. Army Engineers for making rubberized water tanks. Company officials said that details of production and procurement are still being worked out. Production on the Army contract will be started in the near future, according to company officials.

Another contribution to greater tire mileage

STATEX·125

S A F

With Statex-125
tire mileage can be
increased up to 25%

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SAF (Super Abrasion Furnace)

STATEX-125

◆

HAF (High Abrasion Furnace)

STATEX-R

◆

MPC (Medium Processing Channel)

STANDARD MICRONEX

◆

EPC (Easy Processing Channel)

MICRONEX W-6

◆

FF (Fine Furnace)

STATEX-B

◆

FEF (Fast Extruding Furnace)

STATEX-M

◆

HMF (High Modulus Furnace)

STATEX-93

◆

SRF (Semi-Reinforcing Furnace)

FURNEX

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NAMES IN THE NEWS

GEORGE C. MACDONALD, associated with the Brown Co. since 1928, has been appointed sales promotion manager of the company and of the Brown Corp., a newly-created department in coordination with Brown's Advertising Division.

DR. JOSEPH W. LANG, associated with the General Aniline & Film Corp. since 1943, has been appointed director of research for the Central Research Laboratory of the company succeeding Dr. Henry B. Hass, who has resigned to accept a position with another company.

DR. R. H. BOUNDY, since 1945 manager of the Plastic Department of the Dow Chemical Co., has been named director of research for the company. C. B. BRANCH, formerly manager of the company's Technical Service and Development Department, has been named manager of the Plastic Department succeeding Dr. Boundy.

NORMAN J. CYPHERS, vice-president and technical director for the Hamilton Rubber Co., was a member of a panel which discussed "The Development of the Oil Industry" on May 17 at Rensselaer Polytechnic Institute.

GORDON M. KLINE, Chief, Organic and Fibrous Materials Division, National Bureau of Standards, recently received the first annual honor award of the Washington Chapter of the American Institute of Chemists. The award was given in recognition of his work in plastics, fibers and adhesives.

HARRY W. DUDLEY, formerly engaged in sales of coal chemicals and plasticizers in the eastern area for the Pittsburgh Coke & Chemical Co., has been named Eastern District sales manager for the company with headquarters in New York.

ANTHONY OLADKO, associated with Johnson & Johnson since 1945, has been appointed plant manager of the company's surgical adhesive plants in New Brunswick, N. J.

S. H. WILLIAMS, for the past 10 years Charlotte, N. C., manager for the General Dyestuff Corp., has been elected a vice-president of the corporation and named general sales manager with headquarters in the New York home office.

HARRISON C. BLANKMEYER has been appointed scientific director of the Fiberglas Research and Development Laboratories of the Owens-Corning Fiberglas Corp., Newark, Ohio.

CHARLES H. PARCELLS, associated with the U. S. Rubber Co. since 1941, has been appointed supervisor of labor relations for the company.

MAX F. MOYER, manager of cycle tire sales for the Goodyear Tire & Rubber Co., has left for a period of active duty with the Air Command and Staff School of the U. S. Air University at Maxwell Air Force Base, Montgomery, Ala. Colonel Moyer will complete his tour of duty on August 18, at which time he will return to Goodyear.

ROBERT S. CONYBEARE, general sales manager of the Wooster Rubber Co., spoke on "Sales Promotion as a Selling Tool" before the international convention of the National Sales Executives, Inc., who met for a three-day conclave in San Francisco, Calif. on May 27 through 29.

SYDNEY T. ELLIS, assistant to the president of the Commercial Solvents Corp., has been appointed a vice-president. He will continue as assistant to the president.

HAROLD J. ALSTED has been elected vice-president in charge of sales for Sprout, Waldron & Co., while BERNIE V. EDRIDGE has been named vice-president and controller.

JOHN C. SCOTT, JR., and GEORGE H. PAGE have been named to account executive positions in the Detroit sales office of the Standard Products Co., Cleveland, Ohio.

LAWRENCE W. STRATTNER, administrative vice-president of the West Virginia Pulp and Paper Co., has been named assistant administrator of the National Production Authority heading the Chemical, Rubber and Forest Products Bureau. He succeeds K. H. KLIPSTEIN, who has returned to his post with the American Cyanamid Co.

PHILIP S. SHERMAN, former assistant dean of students at the University of Akron, and associated with the Goodyear Tire & Rubber Co. since 1950, has been assigned to expedite customer service in processing and shipping orders for the Chemical Division.

ROBERT E. WORKMAN, formerly St. Louis District manager of the Chemical Division, Goodyear Tire & Rubber Co., has been named to the newly-established post of manager of commercial development for the division.

CHARLES JEWELL and EDWARD GODFREY, both recently associated with the Providence, R. I., plant of the U. S. Rubber Co., have joined the staff of the Carr Manufacturing Corp., Bristol, R. I.

SIMON COLLIER, director of quality control for the Johns Manville Corp., was elected president of the American Society for Quality Control at the organization's sixth annual convention in Syracuse, N. Y. on May 24.

GEORGE GORRA, formerly associated with the Plastic Film Corp. and Milprint, Inc., has joined the technical staff of the Chemical Coatings Corp., Rocky Hill, Conn.

LESTER D. CHIRGWIN, vice-president of Farrel-Birmingham Co., Inc., Ansonia, Conn., has been elected president of the Consolidated Machine Tool Corp., Rochester, N. Y., a subsidiary acquired by Farrel-Birmingham in December, 1951.

JAMES E. TRAINER, vice-president in charge of production of the Firestone Tire & Rubber Co., has been elected a trustee of Pratt Institute.

LLOYD R. LEAVER, vice-president in charge of the Industrial Division of the Thermoid Co., has been elected a director of the company.

HAROLD V. WILLIAMS, associated with the Blaw-Knox Co. for the past 16 years, has been appointed manager of the Process Equipment Department of the company succeeding BRUCE ALEXANDER, who has been transferred to the staff of the Chemical Plants Division.

FRED W. FRALEY, vice-president in charge of sales for the Diamond Alkali Co., has been named deputy assistant administrator of the Chemical, Rubber and Forest Products Bureau of the National Production Authority.

KENNETH L. EDGAR, associated with the Firestone Tire & Rubber Co. for the past 12 years, has been appointed manager of manufacturers sales of the Firestone Plastics Co., Pottstown, Penna., handling the sale of Velon film and sheetings.

GORDON BROWN, vice-president of the Bakelite Co., has been re-elected president of the Society of the Plastics Industry, Inc.

NORMAN S. CASSEL has been elected as vice-president of the Interchemical Corp., in charge of research and development and the company's research laboratories, succeeding DR. A. E. GESSLER.

Offer Coagulation Patent

Among patents recently assigned to the United States, as represented by the Secretary of Agriculture, which are issued to industry on request on a royalty-free, non-exclusive, non-transferable and revocable basis, was U. S. Patent 2,562,191. The patent covers a method of recovering the polymeric constituents from a latex containing 25 to 65% solids produced by aqueous emulsion polymerization in the presence of an emulsifying agent comprising a surface active organic sulfonate. This is accomplished by adding aluminum sulfate and then water, the particle size of the coagulum being governed by the temperature of the water. Applications for license should be addresed to the Bureau of Agricultural and Industrial Chemistry, U. S. Department of Agriculture, Washington 25, D. C.

ELASTOMER AND PLASTICS GROUP HOLDS INTERESTING MAY MEETING

A number of interesting papers were presented at the May 15th meeting of the Elastomer and Plastics Group of the Northeastern Section of the American Chemical Society which was held at the Massachusetts Institute of Technology in Cambridge, Mass. The Program Committee for the meeting consisted of John B. Gregory (Frederick S. Bacon Laboratories), Edward W. Walz (Godfrey L. Cabot), R. V. Does (Wild & Stevens), P. A. Coffin (General Latex), and J. L. Shay (Union Bay State Chemical).

Among the papers presented at the meeting was one by George A. Sofer, who is associated with the Plastics Research Laboratory at M.I.T. Mr. Sofer spoke on "Attempts in Studying the Polymerization of Thermosetting Plastics with Ultrasonic Waves." The speaker said that longitudinal ultrasonic waves, having a frequency of 2.0-2.5 mc. were transmitted through various thermosetting resins with the aim of studying the effect of polymerization on the velocity of propagation and the attenuation of the ultrasonic wave. (Attenuation $= 20 \log_{10} A_1/A_2$ where A_1 and A_2 refer respectively to the input and output amplitude of the wave.)

It was observed that for several resins, including cross-linked polymethyl methacrylate, polyester resins, and phenolic molding formulations, the ultrasonic velocity increased with the degree of polymerization, while the attenuation exhibited a sharp rise followed by a sharp decline. In all cases the peak in attenuation was reached when the resin had attained a highly viscous or gel-like consistency.

It is believed that the rise in velocity follows mainly from the increase in the shear modulus G with degree of polymerization,

$$V_l = \frac{(1/\beta) + (4/3)G}{\rho}$$

where β = compressivity, dV/Vdp, G = shear modulus, shear stress/shear strain, and ρ = density.

The initial sharp rise in attenuation may be explained on the basis of increase in viscosity, which in the liquid phase may become the predominant factor in fixing the attenuation. The decline of attenuation from the peak is perhaps the consequence of increased rigidity of the medium from the gel state to the solid state. The speaker declared that it should be noted that such marked changes of ultrasonic parameters with degree of polymerization could be observed only at temperatures and pressures where polymerization proceeds at a measurable rate.

Another of the papers presented at the meeting was "Oil Blacks vs. Gas Blacks" by Mrs. Clara Wagner Gnerre of the Research and Development Department of Godfrey L. Cabot, Inc., Boston, Mass. Mrs. Gnerre stated that "oil" carbon blacks, which were originally produced in closed furnaces using selected hydrocarbon oils or tars with natural gas as raw materials, can now also be prepared from oil alone. This means carbon black production in localities where natural gas is unavailable, she said.

Grades of oil blacks have been extended from the original FEF (fast extruding furnace) to the finer HAF (high abrasion furnace) and SAF (super abrasion furnace) grades and a recent coarser type called GPF (general purpose furnace) blacks.

The speaker observed that oil blacks possess higher inherent "structure" than gas blacks and, when compounded in rubber, show generally higher modulus, resilience, and conductivity, and better abrasion resistance and extrusion than corresponding grades of gas black. Interesting features of oil blacks are that grades have been produced which are in the same range of conductivity as acetylene black and that the newest SAF blacks impart roadwear 40% better than obtainable with EPC (easy processing channel) black.

Hose Compounding

Frank S. Gregory, an engineer at the Boston Woven Hose and Rubber Co., Cambridge, Mass., delivered a paper on "Hose Compounding" at the meeting. Mr. Gregory said that molded vertical braided hose is, from a standpoint of processing requirements, the most interesting of the various processes for making hose. In this method of manufacture, an unsupported tube of uncured stock is used as a building form, requiring a good degree of firmness in the uncured compound. In addition, it is required that hose compounds have good adhesion characteristics. To secure these qualities the use of various organic extenders, and the use of combinations of elastomers are particularly valuable.

"The Evaluation of Dry Colors Used in Rubber and Plastics" was the title of another paper delivered at the meeting by Henry A. Johnson of the Research Department of the Hood Rubber Co., Watertown, Mass. The addition of organic and inorganic dry colors, said Mr. Johnson, is an important step in the preparation of rubber and plastic materials for their many uses. These pigments are subjected to a number of varied requirements in operation and similarly must be controlled and subjected to comparable tests in the laboratory.

Tinting Strength Determination

An important phase of pigment testing is the determination of the tinting strengths of pigment samples in reference to previously evaluated standards. The use of linseed oil as the vehicle in tinting strength determinations produces a pigment-vehicle mixture which upon drying does not represent the true tinting strength of the pigment. This results from pigment-vehicle separation during the drying process and from a yellowing of the linseed oil as it is oxidized.

A new method of determining the tinting strengths of pigment samples has been introduced using a plastisol vehicle. This vehicle is more satisfactory than the linseed oil because after being applied to a suitable backing, a file card being very satisfactory, it can be quickly set at 220 to 230° F. It does not discolor or chalk during or after the baking process. The fused film is also flexible and does not crack if the paper backing is bent. The use of this mix as a replacement for linseed oil enables the preservation of both sample and standard specimens.

Other papers presented at the meeting included one by Emile E. Habib, director of research for the Rubber Specialties Division of the Dewey & Almy Chemical Co. Mr. Habib spoke on the "Plasticization of Synthetic Rubber Films for Low Temperature Applications." Sylvan S. Simon, associated with the Bolta Co., Lawrence, Mass., prepared a paper entitled "Boltaron" which was presented at the meeting by George S. Laaff, research director of the company. Still another paper on the "Uses of Plastogel" was delivered by Charles W. Bayley, Jr. of the General Latex and Chemical Corp., Cambridge, Mass.

Naugatuck Polygard Stabilizer

A new chemical stablizer, which is said to make possible the production of an improved type of non-staining and non-discoloring GR-S, has been developed by the Naugatuck Chemical Division, U. S. Rubber Co. The new chemical, known as "Polygard", will find its broadest use in light-colored synthetic rubber for the manufacture of white sidewall tires, pressure sensitive adhesives, shoe soling, tiling, hospital sheeting, sponge rubber, wire insulation and all rubber products where light colors are desired. Polygard is known chemically as an alkylated aryl phosphate. Other than its non-staining properties, the product gives the rubber good heat stability and guards it from the destructive effects of heat and oxygen during storage and processing, the company states. Polygard is incorporated with the rubber as an emulsion during the production process. It is blended with GR-S during its latex form. It can be used with rubber produced by either the "hot" or "cold" process and is also adaptable for use with the new oil-extended rubbers.

Planning New Plastic Plant

Plastic and Rubber Products Co., Los Angeles, Calif., is constructing a new plant in Houston, Texas. The new building will be 160 feet long and 80 feet wide. Next to it a boiler house, 40 by 25 feet, is being constructed. Present plans call for the employment of 200 persons at the new plant. The company manufactures aircraft and automotive specialties as well as varied items for the oil industry.

Dow Chemical PVC Resin Plant

Dow Chemical Co. is constructing a plant at Midland, Mich. for the production of polyvinyl chloride resins. It is expected that the plant will be completed this summer. Although the company for years has been producing a copolymer of vinyl chloride and vinylidene chloride known as "Saran", this marks the company's first entry into the polyvinyl chloride field.

Vulcacure Ultra-Accelerators

Alco Oil & Chemical Corp., Philadelphia, Penna., is now manufacturing and offering to the latex compounding trade a line of ultra-accelerators in aqueous suspensions containing 50% active solids. The trade name for these accelerators is "Vulcacure", and the various types include Vulcacure ZB (zinc dibutyldithiocarbamate), Vulcacure ZM (zinc dimethyldithiocarbamate), and Vulcacure ZE (zinc diethyldithiocarbamate). The Vulcacures are not ball-milled dispersions, but are dispersions of finely divided particles equivalent in size to those in a 48-hour ball-milled dispersion. They are quite stable to settling and caking during storage. A new type, Vulcacure NB (sodium dibutyldithiocarbamate), is now also being manufactured. Vulcacure accelerators have been used in compounding both natural and synthetic latices for foam sponge, dipping, casting, slush molding, rug and upholstery backing, and the general line of latex products. A new manufacturing plant has been constructed in Philadelphia for the production of the Vulcacures.

Ro-Search "Foamtread" to Wellco

Ro-Search, Inc. of Waynesville, N. C. has announced that the Wellco Shoe Corp., also of Waynesville, will be the first American firm to manufacture leather shoes with "Foamtread" soles under patents owned by Ro-Search. Even though Wellco has been manufacturing shoes and slippers with Foamtread soles heretofore, no types were produced in which the soles were vulcanized directly to smooth leather uppers. Other firms in foreign countries, controlled by Ro-Search or affiliated with the company, have been producing such footwear successfully for the past five years. Since the Foamtread sole is vulcanized directly to the upper, no welt seams are required, nor are tacks, wires or other metals used. The sole is reinforced around the edges with extruded rubber by a patented process forming a positive bond. Because there are no seams at the welt, a waterproof bond is obtained.

Adhesive Products Grip-Kote

A new rubber base coating for foam and sponge rubber has been developed by the Adhesive Products Corp., New York, N. Y. The new compound, called "Grip-Kote", gives foam or sponge rubber a layer of durable rubber which is tough yet elastic and attractive. Laboratory "pull tests" show that this coating becomes integrated with the foam or sponge on application, the company said. The product can be made in any color or combination of colors in a variety of textures. It can be applied to sheets of foam or sponge before cutting, and will not chip under die-cutting. Grip-Kote can be applied to either the skin or open-face side of the foam, and dries to the touch in 30 minutes or 3 minutes with the aid of infra-red lamps or drying tunnels. Grip-Kote adheres equally well to sponge, cork, fiberboard, glass fiber, canvas, fabric and paper, as well as to foam rubber.

Rossman Promoted By Cabot

Raymond P. Rossman

Godfrey L. Cabot, Inc., Boston, Mass., has announced the appointment of Raymond P. Rossman as executive assistant to Owen J. Brown, Jr., vice-president and general sales manager of the company. Mr. Rossman first came with Cabot in 1937, directly after receiving his master's degree in physical chemistry from the Massachusetts Institute of Technology. Much of his work during the past several years has been in technical sales and service, with particular emphasis placed upon the problems of the rubber industry. At earlier points in his career, Mr. Rossman headed the rubber compounding and testing groups of both the Boston and Pampa, Texas laboratories. Prior to his new appointment, Mr. Rossman served as Cabot technical liaison representative between customers and the company carbon black manufacturing operations of the Southwest. It was in this capacity that he recently visited leading rubber manufacturing operations throughout South America. Mr. Rossman will be located at the Boston headquarters of the company.

Bakelite Consolidates Sales

Bakelite Co., a division of the Union Carbide and Carbon Corp., has announced a program for the consolidation of all its sales activities. The new program is designed to consolidate the sales activities formerly carried on by two separate groups known as the Thermoplastics Department and the Thermosetting Department. George C. Miller has been named vice-president in charge of sales, and will be responsible for all of the company's sales. Clinton W. Blount has been named vice-president and sales manager. Mr. Miller and Mr. Blount were previously vice-presidents and general sales managers, respectively, of the former Thermoplastics and Thermosetting Departments. It is felt that the consolidation will promote greater sales efficiency.

Goodyear has reduced the prices of all Pliolite NR resins by 2c per pound. This is the second price reduction this year, a cut of 1½c per pound having been made in February.

Japanese Geon Plant Operating

A new plant which will increase Japanese production of vinyl plastic by 50% is now in operation at Kambara, near Tokyo. It has a production capacity of 6,000,000 pounds a year, and is so designed that present capacity can be doubled if the need arises. The new plant is owned and operated by the Japanese Geon Co., Ltd. Principal stockholders are the B. F. Goodrich Chemical Co., Furukawa Electrical Co., Ltd., Nippon Light Metal Co., Ltd., and the Yokohama Rubber Co., Ltd., all of Tokyo. Japanese Geon was formed early in 1952 for the manufacture of Geon polyvinyl chloride plastic. Goodrich Chemical furnished design and manufacturing techniques. The plant is completely staffed by Japanese and is the first to be built in Japan with American technical "know-how". Plastic materials produced at the new plant will be used to meet the Japanese demand for such products as electric wiring insulation, upholstery material, raincoats, curtains, garden hose, chemical piping, toys, table cloths, flooring and safety clothing.

Voit Flexible Hose Line

A new and exclusive assortment of Voit Flexible Hose, designed and developed especially for truck, bus and industrial use, has been introduced by the W. J. Voit Rubber Corp., Los Angeles, Calif. The new line features 12 sizes of hose capable of replacing most applications on heavy automotive equipment. The bus, truck and industrial hose, which ranges from 1¼ to 2½ inches inside diameter and from 8 to 24 inches in length, is in addition to the eighteen sizes manufactured by Voit Rubber for use in passenger car installation. The flexible hose is designed to replace the time-taking combinations of metal elbows, rigid sections of straight hose and multiple clamps now necessary on large power plants. The new Voit Rubber hose is expected to find wide usage in the industrial field, particularly where pipe lines and other flexible connections are necessary.

DuPont Offers Adhesive Patents

A series of 14 patents covering various adhesive compositions has been offered for non-exclusive licensing by E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Delaware, under specified conditions. Among the patents are those covering rubber-to-metal adhesions, adhesives comprising an olefin polysulfide rubber, and a condensation derivative of rubber. Specific information covering these patents can be secured by addressing an inquiry to the company's Patent Division.

Stewart Bolling Adds To Line

Sewart Bolling & Co., Inc., Cleveland, Ohio, has extended its line of hydraulic slab-side molding presses by adding a 48 by 48-inch size, 36-inch ram. The capacity pressure is 1,000 tons. The slab-side press is especially useful for slab-sole work and for polishing sheet material. Stewart Bolling builds full-ring, semi-ring and bolt-type presses besides the slab-side type.

FINANCIAL NEWS

Columbian Carbon Co.

First Quarter: Net profit of $1,130,995, which is equal to 70c each on 1,612,218 capital shares, compared with $1,612,277, or $1.00 each on an equal number of shares in the first quarter of the preceding year. Sales in the first quarter of 1952 amounted to $12,135,791, against $12,-648,409 in the first quarter of 1951. Consolidated balance sheet items for the company and its subsidiaries as of March 31, 1952, indicate current assets of $24,193,-601 and current liabilities of $9,916,593. On March 31, 1951, the consolidated balance sheet showed current assets of $23,-131,835 and current liabilities of $7,042,-587.

Goodyear Tire & Rubber Co.

First Quarter: Net profit of $7,372,273, which is equal to $1.61 each on 4,132,864 common shares, compared with $9,461,877, or $2.12 each on 4,130,606 capital shares in the first quarter of 1951. Net sales in the first quarter of 1952 amounted to $280,-844,765, against $267,071,395 in the first quarter of the preceding year.

Cooper Tire & Rubber Co.

For 1951: Net income of $329,947, which is equal to $2.11 a common share on net sales of $17,713,010, compared with $575,-612, or $3.67 a share on sales of $13,274,-779 in 1950.

Textileather Corp.

For 1951: Net profit of $278,861, which is equal to 47c a common share on net sales of $16,372,761, compared with $655,-966, or $1.11 a share on sales of $17,035,-274, in 1950.

Collyer Insulated Wire Co.

For 1951: Net income of $711,813, which is equal to $4.75 a share, compared with $350,708, or $2.34 a share in the preceding year.

Pantasote Company

For 1951: Net loss of $284,721 on net sales of $5,859,183, compared with a net income of $176,514, or 30c a common share on net sales of $5,467,903 in 1950.

Asbestos Manufacturing Co.

For 1951: Net income of $75,783, which is equal to 13c a common share, compared with $10,029, or 71c a preferred share in 1950.

Goodall Rubber Co.

For 1951: Net profit of $420,393, which is equal to $4.30 a share on net sales of $10,686,112, contrasted with $274,081, or $2.91 a share on sales of $6,831,464 in 1950.

B. F. Goodrich Co.

First Quarter: Estimated net income of $6,929,549, which is equal to $1.61 a common share, compared with $8,058,128, or $1.90 a common share. Net sales in the first quarter of 1952 amounted to $138,-248,530, against $157,728,418 in the first quarter of the preceding year. During the first quarter of this year operations were adversely affected by a strike of six weeks' duration in the company's plants in Akron.

Minnesota Mining & Mfg. Co.

First Quarter: Net profit of $3,740,188, which is equal to 47c per common share, compared with $3,925,478, or 49c a share, in the first quarter of the preceding year. Sales in the first quarter of 1952 totaled $43,973,453, the second highest first quarter total in the firm's history. First quarter sales in 1951 were $44,358,553.

Colt's Manufacturing Co.

For 1951: Net income of $655,982, which is equal to $8.20 a share on net sales of $11,478,262, compared with $944,117, or $13.28 a share on net sales of $9,533,205 in 1950.

New Jersey Zinc Co.

For 1951: Net profit of $9,913,553, which is equal to $5.06 a share, compared with $10,024,294, or $5.11 a share in the preceding year. The report includes subsidiaries.

Electric Auto-Lite Co.

First Quarter: Net profit of $2,730,901, which is equal to $1.83 a share on sales of $66,945,861, compared with $2,688,581, or $1.80 a share on sales of $74,931,737 in the quarter ended March 31, 1952.

Anaconda Wire & Cable Co.

First Quarter: Net income of $1,607,-272, which is equal to $1.90 each on 843,-962 shares, compared with $1,620,896, or $1.92 each on an equal number of shares in the first quarter of the preceding year.

General Cable Corp.

First Quarter: Net income of 1,234,206, which is equal to 55c a common share, against $1,251,490, or 56c a share, in the first quarter of the preceding year.

Servus Rubber Co.

Year Ended February 29: Net profit of $141,652, which is equal to 37c each on 384,218 common shares, against $156,262, or 41c a share, in the preceding fiscal year.

Rome Cable Corp.

Year Ended March 31: Net profit of $1,753,651, which is equal to $3.38 each on 481,752 common shares, compared with $1,922,136, or $4.56 each on 406,638 common shares in the preceding fiscal year. Net sales in the year ended March 31, 1952 amounted to $42,657,848, against $35,-142,901.

Seiberling Rubber Co.

First Quarter: Net income of $163,332, which is equal to 36c a common share on net sales of $8,952,304, compared with $312,660, or 84c a share, on sales of $70,-734,404 in the first quarter of the preceding year.

Brunswick-Balke-Collender Co.

First Quarter: Net loss of $250,873 on net sales of $4,241,991, compared with a loss of $100,502 on sales of $4,601,543 in the same quarter of the preceding year.

Okonite Company

For 1951: Net profit of $1,509,886, which is equal to $10.12 each on 149,235 shares, compared with $853,154, or $6.22 each on 137,250 shares in 1950.

United Carbon Co.

First Quarter: Net income of $896,097, which is equal to $1.13 a share, compared with $922,817, or $1.16 a share, in the first quarter of the previous year.

O'Sullivan Rubber Corp.

First Quarter: Net loss of $3,608 on net sales of $1,355,000, compared with a net profit of $89,911 on sales of $2,037,000 in the first quarter of the preceding year.

Sponsors Georgia Tech Project

Southern Latex Corp., Austell, Ga., has instituted a project at the Georgia Tech Engineering Experiment Station to provide research on latex products, particularly those used by the textile, cotton rug and carpet, and paper industries. Emphasis will be placed on the development and application of company products as specifically applied to textile and paper products made in the southeast. The Georgia Tech Experiment Station is especially staffed and equipped for this project. Experienced technicians, recognized nationally as leaders in their field, have at their disposal modern and complete laboratories and scientific equipment.

Cloro-Vent Foam Insoles

Scholl Manufacturing Co., Inc., Chicago, Ill., has introduced "Dr. Scholl's Cloro-Vent Foam Insoles", a new latex foam insole which has been treated with chlorophyll. The insole is perforated to provide for added ventilation while the patented "Cloradura" finish is said to prevent staining of hosiery and feet. The insole is available in full range of sizes for both men's and women's shoes.

PLASTIC COATINGS ASSOCIATION COMPILES REPORT ON SHIPMENTS

Shipments of plastic coated materials and all-plastic sheeting 10 mils and over for the first quarter of 1952 matched the high level of the corresponding period last year, according to a report released by the Plastic Coatings & Film Association, New York, N. Y. For the first three months of 1952, shipments of plastic-coated materials were 10,581,165 linear yards. This was 462,263 yards over the 10,118,902 yards shipped in the first quarter of 1951.

All-plastic sheeting shipments for the quarter were somewhat below the same period last year with 14,632,301 square yards in 1952 compared to 15,150,444 yards in 1951. However, this March, shipments of all-plastic sheeting reached the highest level ever recorded by the Association, 6,017,870 square yards.

Paul F. Johnson, secretary of the Plastic Coatings & Film Association, pointed out that shipments reported this year represent sound current demand. Manufacturers of plastic-coated materials and all-plastic sheeting went into 1951 with a sizeable backlog of unfilled orders which, in part, accounted for the heavy shipments in the first quarter of 1951. This year there was little carry-over into 1952.

It is the consensus of PCFA members that inventories built up last year as a hedge against possible war shortages have, in most cases, been worked off and that, at present, inventories are at a minimum at all levels. One indication is that current orders call for immediate delivery.

The PCFA quarterly figure for pyroxylin-coated materials was 7,870,182 linear yards. This equals an average monthly shipment rate of 2,623,390 yards which was well above the average for the last six months of 1951 but considerably below the rate for the first quarter of 1951. The industry tends to discount comparisons with pyroxylin shipments in the first three months of 1951 since the volume for that period was abnormally high, the highest achieved for any like period since 1947.

Shipments of plastic-coated materials in the first quarter of 1952 were reported in the following catagories: light weight fabrics 10 oz. and under per sq. yd., 1,320,872 linear yards; heavy weight fabrics over 10 oz. per sq. yd., 8,669,509 yards; custom coated, 590,784 linear yards.

All-plastic sheeting shipments for the first three months of this year were: 10 to 15 mils thickness, 9,044,315 square yards; 16 to 19 mils, 635,716 yards and 20 mils and over 4,952,270 square yards. For the first quarter of 1952 pyroxylin-coated materials were shipped in the following quantities: light cotton fabrics, 2,975,028 linear yards; heavy cotton fabrics, 1,835,334 yards; non-fabric materials, 230,059 yards and custom coating, 2,829,761 linear yards.

At a recent meeting of the association, producers of plastic coated materials and all-plastic sheeting reported an improvement in business in the past few weeks. Though the general business picture is still spotty, recent orders have been numerous and delivery requests urgent. This was attributed to low inventories in the hands of customers.

Vinylite Bathtub Bell-Buoy

Plastikaire Products, Inc., Queens Village, L. I., N. Y., is producing a new inflatable toy made of Vinylite plastic film. The new toy is topped with a tiny bell which adds a new note of fun to a child's bath. The Vinylite film resists tearing as

well as soap, moisture, mould and mildew. The buoy is inflated with a few puffs of air through a tuck-in valve and stands about 10 inches high. Like a real bell buoy, the bell rings when the toy is tipped, and a weighted base always brings it back again to an upright position.

G-E "Progressive Mechanization"

A new visual program aimed at boosting American productivity by offering a modern, step-by-step approach to the problems of industrial mechanization, has been announced by the General Electric Co., Schenectady, N. Y. Called "Progressive Mechanization," it is believed by company officials to be the first attempt of its kind to present a concise, workable, consolidation of the principles of production technique and methodology. The new program, twenty-fourth in the company's "More Power to America" series, reflects the experience G-E has gained in promoting production improvements in its own plants. The program consists of three parts: a 16-mm sound-color motion picture, a manual, and a survey form and check list. The entire presentation may be purchased outright from G-E at cost, or is available for single showings through any of the company's nation-wide chain of apparatus offices.

Bruson Joins Olin Industries

Dr. Herman A. Bruson, a former member of the Research Department of the Goodyear Tire & Rubber Co., has been named manager of the Organic Research Department of Olin Industries, Inc., New Haven, Conn. One of the nation's top polymer chemists, Dr. Bruson had been associated with the Industrial Rayon Corp. where he was manager of the Polymer Laboratory. He terminated his association with Goodyear in the late 1920's.

Complete your rubber library! Use the coupon on page 399.

1951 CARBON BLACK PRODUCTION INCREASED 21% OVER 1950 TOTAL

According to the Bureau of Mines of the United States Department of the Interior, production of carbon black in the U. S. in 1951 totaled 1,677,363,000 pounds, 21% above the 1950 total of 1,381,990,000 pounds. In 1951, 645,881,000 pounds of channel black and 1,031,482,000 pounds of furnace black were produced, against 616,765,000 pounds of channel and 765,226,000 pounds of furnace black in the preceding year.

In 1951, 1,129,645 pounds of all types of carbon black were sold in the U. S. of which 1,061,229,000 went to rubber companies. In 1950, 1,109,071,000 pounds of black were sold of which 1,030,368 went to rubber companies. Sales of furnace black in 1951 increased 16% over 1950 while sales of channel black declined 12%. Furnace blacks accounted for 62% of total sales in 1951 compared with 56% in 1950.

As of December 31, 1951, producers held 203,234,000 pounds of carbon black including 123,299,000 pounds of channel black and 79,935,000 of furnace types. At the end of the previous year, producers held 89,543,000 pounds, including 65,342,000 pounds of channel black and 24,201,000 pounds of furnace black.

Exports of carbon black in 1951 were 433,493,000 pounds, 8% above the 399,568,000 pounds exported in 1950. Exports during the whole of 1951 were controlled by the U. S. Department of Commerce.

At the end of 1951, 58 plants were producing. Three new furnace black plants began operations in 1951. Daily capacity at the end of 1951 was 5,163,300 pounds per day, compared with 4,075,200 at the end of 1950.

Spalding Names New President

Directors of A. G. Spalding & Bros., Inc., Chicopee, Mass., at a recent meeting elected William T. Brown as president succeeding Charles F. Robbins, who was named chairman of the board. Walter B. Gerould was elected vice-president and controller. Mr. Robbins joined Spalding in 1915 as credit manager of the Eastern Division. He was elected assistant treasurer in 1917, and in 1933 was named president of the company. Mr. Brown joined the firm in 1919, and became vice-president in charge of manufacturing in 1937. Mr. Gerould joined Spalding in 1921, was elected secretary and treasurer in 1939, secretary and controller in 1941 and director in 1951.

Kleistone Rubber Plant Addition

Kleistone Rubber Co., Providence, R. I., has completed a new addition to its plant. Completed last fall at a cost of $50,000, the new wing is 100 by 76 feet, constructed of concrete block with a brick veneer. The addition provides space for materials handling. This latest expansion brings the total spent on capital improvements since World War II to $150,000. One corner of the new wing is devoted to a new laboratory.

NEWS IN BRIEF

Columbian Carbon Co. has released another in its series of technical reports on Columbian Colloidal Carbons. Vol. XI, No. 2, entitled "A Midcentury Review of Rubber Carbons" is available on request to the company.

John A. Roebling's Sons Co. has let a contract for the construction of a $350,000 warehouse and office building at Lakewood, Ohio. The facility will have a total floor area of approximately 35,500 square feet and will provide storage and shipping space for wire rope and electrical wire.

Breakage of delicate meterological instruments in transit has been practically eliminated by the Department of Transport, Toronto, Canada, by use of Goodyear Airfoam as a packing material.

"Resistance of Hycar 1011 and 1012 to Hydralube H-2" is the title of Issue No. 5 of the Hycar Technical Newsletter published by the B. F. Goodrich Chemical Co. Copies are available on request.

Field tested successfully for two years, a rubber base interior and exterior emulsion paint is being offered by the Skelly Paint Co., 324 Madison Avenue, New York 17, N. Y.

U. S. Rubber has awarded a contract for the construction of a 60,000 square foot addition to its plant at Passaic, N. J. When completed in about 4 months, the new facilities will be used for the manufacture of wire-braided hose for the armed services.

A new 4-page bulletin describing a dozen different special coatings for plant maintenance use has been issued by United Laboratories, Inc., Cleveland, Ohio. Copies are available on request.

Glyco Products Co. has acquired an additional plant at Williamsport, Penna., to provide for diversification and expansion, primarily for civilian markets. The plant has about 150,000 square feet of floor space with about 30 acres of land for expansion.

A revised treatise on the most-up-to-date methods of dyeing most of the new synthetic fibers and blends has been published by the General Dyestuff Corp., New York, N. Y., sole distributor for products manufactured by the General Aniline & Film Corp.

Leading business executives and designers will meet again in Aspen, Colo., on June 23-29 at the Aspen Institute's Second Annual Conference on "Design as a Function of Management."

Pyle National Co., Chicago, Ill., is manufacturing control jumpers for use between diesel locomotive units utilizing Hycar as the protective material.

John Hewson Co., New York, N. Y., has opened a new district office in the National Bank Building at Philadelphia, Penna., to serve Eastern Pennsylvania, Delaware, and southern New Jersey.

Harwick Standard Chemical Co. held an "open house" on April 5 in Akron, Ohio, celebrating the rebuilding of its plant.

A new technical bulletin on the properties of Kel-F oils, waxes and greases has been issued by the Chemical Manufacturing Division of the M. W. Kellogg Co., P. O. Box 469, Jersey City 3, N. J. Ask for Technical Bulletin No. 5-1-52.

Alrose Chemical Co., Providence 1, R. I., has published a new technical bulletin on "Nonisols", nonionic surface active agents of the polyoxyalkylene fatty ester type.

The installation of latest type wood veneer-making and wire-bound container equipment highlights a plant-wide modernization program marking 25 years of progress for the American Wood Products Corp., Marion, S. C., subsidiary of the American Box Co.

A new issue of the Union Pacific Railroad's "Freight Rate Territorial Map of the United States" is now being distributed. Copies of the map may be secured from the railroad at Omaha, Nebraska.

U. S. Rubber has introduced a new shoe, called Nassau Oxford Keds, into its line. The shoe has uppers of buck-white oxford cloth and soles of coral-red cork-crepe.

Foam latex by the yard for over-the-counter sales in department and specialty stores is being introduced by the Firestone Industrial Products Co. with the availability of Foamex sheet stock for home upholstering.

Aluminum Co. of America has purchased the equipment for manufacturing insect wire screening formerly owned and operated by the Woven Wire Fabrics Division of John A. Roebling's Sons Co.

The Dunellen, N. J., plant of the Worthington Corp. has been redesignated as the Plainfield Works. The plant should now be addressed: Worthington Corp., Plainfield Works, Plainfield, N. J.

Midwest Rubber Reclaiming Co., East St. Louis, Ill., has issued a technical report on "MP-1, Midwest Standard Premix for Molded Goods." Ask for Report No. 16.

The "Whiteway" tire recently introduced by General Tire has inspired a famous New York hat designer to create an Easter bonnet patterned on the tire's design.

Dow Chemical International Ltd., a subsidiary of the Dow Chemical Co., has announced plans for the formation of a new company to manufacture plastic materials in Japan. The new firm will be known as Asahi-Dow Ltd., with the Asahi Chemical Industry Co., Ltd., of Osaka and Tokyo as the associate company.

A new eight-page, two-color bulletin on fractional-horsepower gear-motors listing 61 standard models from which to choose has been announced as available from the General Electric Co., Schenectady 5, N. Y.

"Oxidation of Unvulcanized Cold Rubber: Influence of Adsorption by Carbon Black," is the title of another in the series of technical reprints issued by the Columbian Carbon Co. Ask for Columbian Colloidal Carbons, Vol. XI, No. 1.

Complete information on how to use "Magic-Vule" plastic rubber for repairing conveyor belts is contained in a new folder now being distributed by the Magic Chemical Co., Brockton, Mass.

A technical service report describing the preparation and use of lithium stearate in the making of grease has been made available by the Witco Chemical Co., New York, N. Y. Ask for Report M-12.

Seiberling Rubber Co. has announced new warranties, permitting its independent dealers to handle adjustment claims on truck tires as well as passenger tires "on the spot." In addition, the warranty on premium Safe-Aire passenger tires has been made more liberal.

A new high in fuel resistance is being scored by a synthetic rubber compound, 1009-10, just developed by the Parker Appliance Co., Cleveland, Ohio, for O-rings and other molded seals.

The story of Toscony fabrics, from the production of Vinylite plastic film and sheeting through its transformation into versatile and colorful fabrics, is interestingly related in a new 24-page illustrated booklet published by Toscony Fabrics, Inc., 303 Fifth Ave., New York 16, N. Y.

Goodyear has announced price reductions in its cyclized natural rubber derivative, Pliolite NR, effective February 1. The price of the resin itself has been lowered 1½c a pound, while pigment dispersions have been lowered 2c a pound and masterbatches, 1c a pound. These reductions were made on all types and amounts.

A technical bulletin on Santicizer 3, a sulfonamide type plasticizer particularly useful in formulating heat sealing or heat-sensitive adhesives and lacquer coatings, has been made available by the Monsanto Chemical Co., St. Louis, Mo.

The Association of Consulting Chemists and Chemical Engineers, Inc., held its annual Spring Outing on June 6 at the Westchester Country Club, Rye, N. Y.

Seiberling Gets Tax Rebate

A recent ruling by a Federal Court in Cleveland, Ohio, has entitled the Seiberling Rubber Co. to a $60,587 tax rebate on its 1938 federal surtax payments. The ruling stated that Seiberling was entitled to the money because it had accumulated a deficit at the start of the tax year ending October 1, 1938. The company's Delaware charter prohibited it from making a dividend distribution that year, even though it showed a profit, because it had a deficit at the start. A 1936 act of Congress levied a surtax on undistributed net profits. It was intended to force distribution of these funds as dividends for which stockholders could be taxed. Congress amended the act in 1942 to give relief and refunds to corporations who were prevented by law from making such distributions. The court held that Seiberling was entitled to relief because it was a deficit corporation at the start of 1938. During the hearing, Seiberling's lawyers contended that the firm's wholly-owned subsidiary sales organization owed the parent company $3,000,000 that year. In addition, the firm was carrying losses of $995,000 on investments in a Canadian subsidiary and in Kemitex Products, Inc., Wadsworth, Ohio.

American Polymer Polyco 468

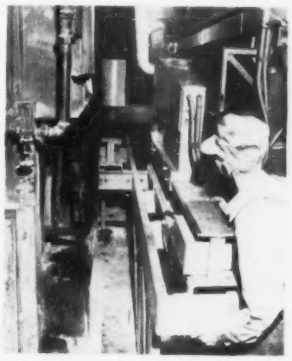
To meet the demands of the paper industry for a polyvinyl acetate copolymer solution which deposits films with non-blocking characteristics, the American Polymer Corp. of Peabody, Mass., has developed Polyco 468. This new product deposits films which are said to be tough, glossy, scuff resistant, water resistant, grease resistant, heat sealable and they possess non-blocking properties. Pressure tests of one pound per square inch at 120°F. and at a relative humidity of 78% show no evidence of face-to-face blocking. Polyco 468 can be reduced to a solids content of 45% with ethyl alcohol without causing precipitation of the copolymer. It is soluble in all proportions with ethyl acetate and acetone. The product does not require fusion to achieve good adhesion, gloss or any of its other properties. However, higher temperature heating for one or two minutes improves adhesion on less porous surfaces. Polyco 468 can also be modified and can be polymerized in other solvents to meet specifications. It finds use in paper coatings, adhesives, inks, lacquers and protective coatings, saturants and sizings.

Kellett Joins R.G.A.

William G. G. Kellett, who has been closely associated with the compilation and interpretation of rubber statistics since 1937, and who has been senior statistician of the International Rubber Study Group since July, 1947, will become chief executive officer of the Rubber Growers' Association on June 1. Mr. Kellett's career has included statistical positions with the former International Rubber Regulation Committee, the Rubber Intelligence Branch of the British Colonial Office, and the London Rubber Secretariat, in addition to his more recent work with the International Rubber Study Group.

Goodrich Installs Beta Ray Gauge

B. F. Goodrich Co. has installed a Beta Ray Gauge in its plant at Akron, Ohio, where it is now at work helping to build tires with greater precision than ever before. The radioactive eye can be used to control rubber coating of fabrics to within thousandths of an inch. The Beta Ray Gauge determines thickness by measuring weight per unit area of the fabric as it



This photograph shows rubber covered fabric passing between the capsule which contains the Strontium 90 (lower left center), and the cylindrical "detector" directly above.

emerges from the calender rolls. The fabric passes between the jaws of the radioactive scanning device. The lower jaw, positioned beneath the fabric sheet, holds a capsule containing a tiny grain of Strontium 90, by-product of atom bomb plants and source of radioactivity in the gauge. The upper jaw of the gauge, mounted above the fabric, contains a detector unit known as an ionization chamber. The lighter the fabric, the more radiation passes through to reach the detector. Changes in the radioactive beam are instantaneously and automatically recorded on a continuous chart. The chart reveals the weight of the fabric continuously and furnishes a permanent record of all past production for cost control.

Goodyear Farms Anniversary

April 3 marked the 35th anniversary of Goodyear Farms, Litchfield Park, Arizona. Founded by the Goodyear Tire & Rubber Co. in 1917, the land was first cultivated to grow cotton. Later, the Farms became a research laboratory, exploring new methods in agriculture and providing a proving ground for the development of modern farm machinery, at the same time operating a highly successful large-scale farming program. The anniversary for the farm comprising 14,000 acres, the largest single unit of its kind all in one location in Arizona, honored Paul W. Litchfield, chairman of the company and president of Goodyear Farms, who pioneered the project and who has been responsible since then for its continued development and contributions to agricultural progress.

Painter Named ASTM Treasurer

Robert J. Painter has been appointed treasurer of the American Society for Testing Materials succeeding John K. Rittenhouse, who has retired after 43 years of service with the organization. Dorothy P. Douty has been named assistant treasurer. Following graduation from Rensselaer Polytechnic Institute with a degree of civil engineer, Mr. Painter served on the faculty of that school. Later, he was associated with the Bethlehem Steel Co. He has been on the ASTM staff since 1931. Mr. Painter will continue to serve as assistant secretary of ASTM, a post he has held since 1946. He will also continue as associate editor of the *ASTM Bulletin* and handle various technical contacts as in the past. Miss Douty, as assistant treasurer, will be directly in charge of accounting and many financial records, and will also assist in connection with budgets and ASTM investments. Mr. Rittenhouse, retired treasurer, was the first full-time employee of the society, beginning in 1909. He was appointed treasurer in 1946 after many years as assistant treasurer.

Consolidates Sales Activities

Douglas P. Johnstone, who resigned his post as manager of the Chicago office of the Harwick Standard Chemical Co. several months ago, is now devoting his full time to sales activities of the General Latex & Chemical Co. and S. J. Pike Co., Inc., in the Chicago area. Mr. Johnstone maintains headquarters at 381 Sunset Ridge Road, Northfield, Ill. A veteran of the first World War, Mr. Johnstone entered the crude rubber business in 1919 when he joined Charles T. Wilson & Co., Inc. In 1923, he joined the firm of J. A. Kendall in Akron, Ohio, where he was engaged in the sale of crude rubber and chemicals. In 1930, Mr. Johnstone established his own business, and since January, 1931, has represented General Latex in the Chicago area. Mr. Johnstone established Harwick Standard's Chicago offices in 1940 and represented them in that area until November 1, 1951.

New NSC Data Sheet Available

The National Safety Council, 425 North Michigan Avenue, Chicago, Ill., has made available reprints of its Data Sheet D-RU. 3, which discusses windups and letoffs of the types used in the rubber industry for handling fabric, cord, or stock. This data sheet is of particular interest since windup injuries are currently the number one problem of the safety program of the rubber industry. Data sheet reprints are available on request to NSC.

Acrawax C Beads Available

Glyco Products Co., Brooklyn, N. Y., has announced that its high melting point (143° C.) synthetic wax, Acrawax C, is now available in a new improved form called Acrawax C Beads. The beads are of relatively uniform small particle size which flow readily when poured from the drum, the company states. "Fines" are said to have been reduced to a minimum. Samples are available from the company.

Operating Goodrich Belt System

A rubber conveyor belt system that looks like a roller coaster but stretches more than two and one-half miles over, around and under rugged mountains is presently in operation in the Kanawha River Valley near Charleston, West, Va. The conveyor, featuring a B. F. Goodrich rubber "belt-road," transports coal from a mining area for a large steam generating plant under construction. The first flight of rubber belt, a 1,200 foot section, picks up coal from a drift mine 500 feet up the side of a 1,900 foot mountain and carries it down the mountain side at a 17° angle for an overall drop of 296 feet. From here, the belt threads its way across country for more than 4,000 feet, then rises to the steep side of a second mountain which it circles for 4,700 feet in a series of roller coaster dips and rises. The rubber belt next burrows into a 4,000 foot tunnel drilled through the base of third mountain and finally emerges at the Kanawha River, 14,000 feet from the start of its ride. The belt discharges its coal cargo into river barges. The entire system is composed of nine flights of belting, ranging in length from 230 to 3,770 feet, pulley to pulley distance. To install the 28,000 feet of rubber conveyor belting used in the system, 1,000 foot rolls of Goodrich belting, weighing 9,000 pounds each, were hauled to the mine site by motor freight. A portable electric vulcanizer was used to make 32 vulcanized splices, four splices in the longest flight, to join belt ends. The belt is doing a job equal to a fleet of a dozen 15-ton trucks operating 20 hours a day.

Issues 96,655 New Shares

American Hard Rubber Co., New York, N. Y., is offering to holders of its preferred and common stock 96,655 shares of additional common stock at $12.50 a share. Holders of each four shares of the $50 par value $3.50 dividend preferred, and of each two shares of common have the right to subscribe to one share of the new common until June 4. If all of the rights are exercised, the company will receive $1,208,187, less expenses of about $40,000. The offering includes the right of secondary subscription, subject to allotment. Capitalization consists of $1,770,000 of notes due in 1962; $60,000 of notes due August 1, 1952; 32,762 shares of $50 par value preferred stock and 273,609 shares of common.

Pittsburgh Coke Names Menke

Pittsburgh Coke & Chemical Co., Pittsburgh, Penna., has announced the election of W. Kenneth Menke to the newly-creted post of vice-president in charge of chemicals. In his new post, Mr. Menke will be in charge of the company's expanding chemical activities. Mr. Menke was previously associated with the Monsanto Chemical Co. for 17 years in various operating, research and administrative positions, the most recent having been director of Monsanto's Development Department. He received his degrees in chemistry and chemical engineering from Washington University, St. Louis, Mo.

More Certificates of Necessity

The Defense Production Administration has issued a new list of approved Certificates of Necessity for accelerated tax amortization on new or expanded defense facilities. Certificates issued recently include:

U. S. Rubber Co., Providence, R. I., $104,800 for rubber battery separators.

Anaconda Wire & Cable Co., Hastings-on-Hudson, N. Y., $36,500 for Navy cables.

Carlisle Corp., Carlisle, Penna., $19,213 for tire tubes.

Rex-Hide, Inc., East Brady, Penna., $60,000 for flaps for truck tires.

Continental Rubber Works, Erie, Penna., $79,121 for reclaimed rubber.

B. F. Goodrich Co., Akron, Ohio, $135,047 for reclaimed rubber.

U. S. Rubber Co., Detroit, Mich., $65,289 for military tires.

Dewey & Almy Chemical Co., Acton, Mass., $440,000 for refined isoprene.

Boston Woven Hose & Rubber Co., Cambridge, Mass., $456,800 for reclaimed rubber, and $124,600 for reclaimed rubber.

Flexible Tubing Corp., Guilford, Conn., $12,690 for flexible ducting for the Armed Services.

U. S. Rubber Co., Bristol, R. I., $296,534 for ordnance.

Boston Woven Hose & Rubber Co., Cambridge, Mass., $130,738 for horizontal wire braided hose.

U. S. Rubber Reclaiming Co., Cheektowaga, N. Y., $792,816 for reclaimed rubber.

Varflex Corp., Rome, N. Y., $70,810 for electrical insulating and sleeving for the Armed Services.

Hood Rubber Co., Watertown, Mass., $37,370 for sealed insulation boots.

Suprenant Manufacturing Co., Clinton, Mass., $319,961 for wire and cable.

Stokes Molded Products, Inc., Trenton, N. J., $180,000 for hard rubber dust.

Raybestos-Manhattan, Inc., Passaic, N. J., $40,000 for rubber lining for equipment to produce defense materials.

Nearpara Rubber Co., Trenton, N. J., $258,516 for reclaimed rubber.

Okonite-Callender Cable Co., Paterson, N. J., $83,217 for shipboard cable for the U. S. Navy.

Kelly-Springfield Tire Co., Cumberland, Md., $517,250 for military tires and tubes.

Essex Wire Corp., Marion, Ind., $271,279 for copper wire for the Signal Corps.

Consolidated Process Co., Inc., Indianapolis, Ind., $84,000 for hard rubber compounds.

General Cable Corp., St. Louis, Mo., $66,050 for field wire.

Cabot Carbon Co., St. Mary Parish, La., $1,847,080 and $2,655,500 for carbon black; Centerville, La., $1,097,475 for carbon black; and Sunray, Texas, $185,000 for carbon black.

Thermatomic Carbon Co., Sterlington, La., $198,500 for thermal carbon black, and $985,110 for carbon black.

Phillips Chemical Co., Borger, Texas, $479,500 and $2,395,900 for carbon black.

United Carbon Co., Wheeler, Texas, $1,907,500 for carbon black.

Bunn Named Bakelite President

Howard S. Bunn has been appointed president of the Bakelite Co., a division of the Union Carbide and Carbon Corp. Mr. Bunn was formerly a vice-president of Bakelite and of the Carbide and Carbon Chemicals Co., another Union Carbide division. He entered the Carbide organization in 1922 as a salesman of alloy specialties for the chemical industry. After several years as an advertising writer he became advertising manager for Carbide and Carbon. Later, he became manager of the Pyrofax Division of that company. In 1938, Mr. Bunn was appointed manager of the Plastics Division of Carbide and Carbon. In 1944, Mr. Bunn was made vice-president, Plastics Division, Carbide and Carbon, and vice-president in charge of sales, Thermoplastic Division of the Bakelite Co. He is a director and vice-president of the Bakelite Co. (Canada), a director of Bakelite Ltd. (England), a director and vice-president of Canadian Resins and Chemicals Ltd., and a director of the U. S. Testing Co. Born in Philadelphia, Penna. in 1899, Mr. Bunn was graduated from Lehigh University in 1920 with a B. A. degree in chemistry. In 1922, the same university awarded him with the degree of chemical engineer. He is a member of the American Chemical Society, the Society of the Plastics Industry, Manufacturing Chemists Association and the Chemists Club.

Goodrich Promoting Tomlinson

E. F. Tomlinson, presently general manager of the Industrial and General Products Division of the B. F. Goodrich Co., will be named general manager of the Automotive, Aviation and Government Sales Division of the company upon the retirement of C. E. Brunner who will retire in December. Mr. Brunner has headed the division since 1938. Mr. Tomlinson has held the position he now holds for the past three years. He has been with Goodrich since 1927. Mr. Tomlinson is a graduate of Ohio State University. Clyde C. DeLong, general manager of manufacturing and sales at the company's Plastic Division at Marietta, Ohio, for the past two years, will succeed Mr. Tomlinson. Mr. DeLong has been associated with the company since 1928. He became plastic sales manager in 1949 and division general manager the following year. Mr. DeLong is an alumnus of Miami University.

NPA Redefines Thiokol

The Chemical Division of the National Production Authority has revised its definition of Thiokol. The new definition holds that Thiokol is a registered trade mark meaning any one of the polymers produced by the chemical reaction between dichlorodiethyl-formal and an alkali polysulfide which are distributed as liquid polymers, water-dispersed latices, and dry rubber. Under the old definition, Thiokol was any one of the series of chloroalkyl polysulfide polymers derived from the chemical reaction between chloro-ethyl formal and sodium tetrasulfide.

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NEW RUBBER PRODUCTS

U. S. Rubber Uskon Mat

A rubber mat with a built-in radiant heating unit has been developed by the Mechanical Goods Division of the U. S. Rubber Co. The mat has been designed to provide greater comfort for personnel who encounter cold working conditions on the job. On the surface, the heater looks like a high-grade rubber floor mat. Its center, however, contains a layer of electrically conductive rubber which constitutes the

heating element. It operates on 110-volt current which can be supplied from any amp socket or baseboard outlet. Normal operating temperature for the heater is about 35 degrees above the surrounding temperature. This temperature is said to be warm enough to give adequate comfort but not hot enough to feel uncomfortable under foot. The rubber used in the mat is especially compounded for toughness. The heaters are being marketed under the trade name "Uskon"

All-Purpose Swimming Mask

Superior Rubber Industries, 350 W. Ontario Street, Chicago 10, Illinois, has introduced a new all-purpose rubber swimming mask. Said to meet all swimming pool regulations, the mask is made of soft green

rubber with feathered edge for comfort. Designed to protect the eyes and nose of the wearer, the mask features an adjustable headstrap. The lenses are made of Vinylite as another safety feature.

Rubber Dipped Aircraft Boot

A new type of dipped rubber boot to seal the open joint on the control column of the Beaver military observation plane is being manufactured for the DeHavilland Aircraft Co. of Canada by the Rubber Specialties Division of the Dewey & Almy Chemical Co. The specially designed boot encases the pinned joint on the control column but permits it to swing freely between pilot and co-pilot. The boot seals the open joint against foreign materials or objects which could jam the exposed cable controls through the joint. Made of neoprene, the boot is resistant to oil, cold and abrasives and is of sufficient thickness to prevent buckling against the cables. Simple to assemble and self-adhering, the one-piece boot is pulled down over the column with a jig and holds itself in place. It measures 9 inches long and about 5 inches wide, is open at the top and bottom and has a hole in the face through which a locking pin protrudes. The dip rubber process of manufacture was adopted because it best produced the necessary odd, hollow shape which would meet specifications, the company said.

Lane Stay-Dry Bathing Cap

Seamless Rubber Co., New Haven, Conn., has introduced a new bathing cap, the "Lane Stay-Dry Featherweight." Said to be 30 to 50% lighter than ordinary bathing caps, the "Featherweight" is made of a pure, resilient rubber which does not require thickness. The cap will readily

stretch the 1 5/6-inch estimated difference between the smallest and the largest head size. It also features a specially molded crown to allow for hair room while a lower neck line provides for greater coverage. It also has a non-pull embossed inner surface for ease in putting the cap on and taking it off. The water-tight cap is available in five colors.

C. G. Sargent's Sons Corp., Graniteville, Mass., has released a new bulletin on its industrial dryers. Ask for Bulletin No. 191.

Self-Supporting Vinylite Tent

Bihnor Corp., Maspeth, L. I., N. Y., is producing new self-supporting play tents for children made of Vinylite plastic. Designed for use both indoors and outdoors, the tents are available in two sizes, the "Pow-Wow Wigwam," and the "Heap Big Teepee." Both play tents have square bases, composed of four separate chambers of Vinylite plastic sheeting which are inflated orally. Securely joined at the end,

these tubes provide stability as well as plenty of floor space inside the tent for play. A three-section center pole holds the tent erect while in use and is easily dismounted so that the tent may be moved or stored. The larger tent easily holds three or four children, has a base 4½ feet square, stands 5 feet high, weighs 4 pounds and fits into a box measuring 3 by 5 by 20 inches. The smaller tent has a base 3½ feet square, stands 4 feet high and accommodates at least two children. The smaller tent weighs but 2 pounds and folds into a package 3⅝ by 3⅝ by 16½ inches in size.

Sidney-Williams Vinyl Toys

Sidney-Williams Co., Glendale, Calif., is marketing a new line of toys made of Vitaplast, a vinyl resin plastic material. One of the items in the line, "Sassy the Playful Horse," is shown below. Sassy is 5 inches high, 6 inches long and comes in

assorted colors. The toy is flexible and stays bent in any position. Other toys featured by the company include "Buck Bunny," "Poppo the Clown," "Happy the Seal," and "Cuddle Bunny." All the toys are similarly constructed and all are available in a variety of colors.

LEADING SUPPLIERS TO THE RUBBER, PLASTICS AND ALLIED INDUSTRIES ·

CANADIAN NEWS

Canadian Combines Commissioner T. D. MacDonald has reported to the government the alleged existence of combines in Canada's rubber industry. Nineteen rubber companies, including all the leading manufacturers, were listed as being involved as well as the Rubber Association of Canada, the industry's spokesman.

The report on the rubber investigation was initiated by F. A. McGregor, former Combines Commissioner, who resigned in January, 1950. Begun in September, 1947, the inquiry to find out if there were agreements by manufacturers to fix prices and reduce competition covered six divisions of the industry: mechanical goods; tires and tubes; accessories and repair materials; heels and soles; rubber footwear; and vulcanized rubber clothing.

Those alleged to have been involved, either through assistance or through direct operation of a combine, included: the Rubber Association of Canada; Dominion Rubber Co., Ltd.; Dunlop Tire & Rubber Goods Co., Ltd.; B. F. Goodrich Rubber Co. of Canada, Ltd.; Goodyear Tire & Rubber Co. of Canada, Ltd.; Firestone Tire & Rubber Co. of Canada, Ltd.; and the Sieberling Rubber Co. of Canada, Ltd.

Stuart Garson, Canadian Minister of Justice, tabled in the House of Commons the 700-page, 300,000-word report. Mr. Garson said he would make a further announcement after he has examined the report carefully and obtained legal counsel "as to whether proceedings would be instituted against members of the alleged combines."

Additional plant construction which will bring the company's present expansion program at Sarnia, Ontario, to over $17,000,000 has been announced by the Dow Chemical Co. of Canada, Ltd. Of special interest is the fact that an ethylene plant will be built at an estimated cost of approximately $3,500,000. An initial capacity of 100,000 pounds per day will supplement the supplies of ethylene which Dow will continue to obtain from the Polymer Corp. A new styrene plant will also be built which will produce approximately 2,000,000 pounds of styrene monomer per month, making possible increased production of Styron, the company's polystyrene plastic. This plant, which will cost about $4,000,000, will produce several new types of Styron not previously made in Canada.

Dr. Ira E. Puddington, head of the Colloids Section of the National Research Council at Ottawa, has been named director of the Division of Applied Chemistry to succeed the late Adrian Cambron. He will continue to head the Colloids Section as well. Dr. Leo Marion, formerly assistant director of the Pure Chemistry Section, has been named co-director (with NRC President E. W. R. Steacie) of the Division of Pure Chemistry. Dr. Marion will also continue his work as head of the Organic Chemistry Section.

Polylite, said to be an improved antioxidant, has been introduced by the Naugatuck Chemicals Division of Dominion Rubber Co., Ltd. The new product, which is being made at the Elmira plant, is said to give excellent protection against heat and oxygen and to be the least discoloring and staining of the semi-discoloring group. It is recommended by the company for use in tire carcasses, inner tubes, footwear, sundries, wire insulation, heels and soles, and is reported to be effective in natural rubber, GR-S, neoprene and Paracril.

Monsanto Canada, Ltd., has purchased all of the outstanding common stock of the Barringham Rubber and Plastics Co., Ltd., Oakville, Ont. Barringham, which will be operated as a subsidiary of Monsanto, manufactures a wide range of plastic-coated fabrics and rubber products. Through the new arrangement, the Barringham plant will be able to afford a supply of Monsanto's Ultron vinyl chloride resins and film to the growing plastics market in Canada. In addition to supplying resins for Ultron plastics, Monsanto will provide the Oakville plant with technical assistance for the development of new products in the general field of plastics. The Barringham plant represents an investment of more than $2,000,000. Edward Barringham will continue to serve as president and it is reported that the present staff of 150 employees is to be retained.

Dewey & Almy Personnel Changes

Dewey & Almy Chemical Co., Cambridge, Mass., has announced a number of additions to company personnel. John H. McCarthy, Jr., has joined the Adhesives and Coatings Division as a salesman handling Darex resin emulsion adhesives and other products in western New York, New Jersey, Pennsylvania and the southern coastal states. Mary T. Burgess has joined the Rubber Specialties Division laboratory as a chemist specializing in low temperature polymers for meteorological balloons. Benjamin Gudzinowicz and Malcolm Hecht, Jr., have joined the staff of the company's new plant at Acton, Mass. Mr. Gudzinowicz will have charge of the control laboratories group while Mr. Hecht has been appointed foreman in the new plasticizer area at Acton. John G. Broughton, Jr. has joined the Organic Chemicals Division of the company as a salesman. He will sell copolymer latices to the paint, paper and textile industries.

Rubber library incomplete? Use the coupon on page 399.

CANADIAN RUBBER DIVISION HOLDS ITS ANNUAL MEETING

Approximately 60 members and guests attended the annual meeting of the Division of Rubber Chemistry of the Chemical Institute of Canada, held at the Sheraton-Mount Royal Hotel, in Montreal, Canada, on June 4 in conjunction with the 35th Annual Conference of the parent society. As usual, the conference featured exhibits of machinery and equipment and chemicals, with some 35 concerns displaying their wares.

The meeting of the Rubber Division featured the presentation of eight papers, at morning and afternoon sessions, with N. W. Smith (Dominion Rubber), the retiring chairman, presiding at both sessions. Abstracts of these papers appeared in our May issue. There was only one change in the scheduled program. W. D. Stewart, of the Firestone Tire & Rubber Co. of Canada, presented the paper on "Truck-Bus Tires Today," substituting for H. T. Humby who was unable to be present.

The business meeting, held at the end of the morning session, featured the election of officers for the 1952-53 season, with the following results: *Chairman*, T. L. Davies (Polymer Corp.); *Vice-Chairman*, George Stevens (Canadian Goodyear); *Secretary-Treasurer*, Eric Bolton (Canadian Goodrich). The following were elected members of the Executive Committee: H. E. Hencher (Blachford), G. S. Baxter (Canadian Firestone), and R. Gorrie (Delacour-Gorrie). The slate was presented by J. Ramsey (Miner Rubber), a member of the Nominating Committee.

It was also announced that the Rubber Division would again meet with the parent society next year. The meeting will be held in Windsor some time in June, 1953.

Flexol Plasticizer CC-55

Carbide and Carbon Chemicals Co., New York, N. Y., has introduced "Flexol" Plasticizer CC-55, a new, general-purpose, primary plasticizer for vinyl chloride resins. A feature of the new plasticizer, a di-2-ethylhexyl hexahydrophthalate, is its "across the board" utility in all major vinyl plastic compounding, according to the company. It is a plasticizer for calendered and extruded goods, as well as organosols and plastisols. Excellent light and heat-stability characteristics make the product equally useful in clear and pigmented products. The new plasticizer is said to have excellent compatibility with the vinyl chloride resins and with many coating resins and polymers. Company tests have shown that neither ultra-violet light nor high humidity at high temperatures has an adverse effect on its compatibility. Vinyl resin compounds plasticized with CC-55 are resistant to water leaching and have good low-temperature flexibility. Plastisols based on CC-55 have very low viscosities and excellent storage stability, the company said.

The Inflated Vinyl Division of the Ideal Toy Corp. has acquired 35,000 square feet of manufacturing space in the Jamaica, L. I., N. Y., plant formerly occupied by the Ideal Latex Corp.

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OBITUARIES

Dr. Arthur B. Lamb

Dr. Arthur Becket Lamb, Erving Professor of Chemistry Emeritus at Harvard University and for 32 years editor of the *Journal of American Chemical Society*, died on May 15 while going to his home in Brookline, Mass., from the Harvard chemistry laboratory. He was 72 years old. Dr. Lamb, who was director of the laboratory from 1912 to 1947, was a winner of the Priestly Medal, highest award of the American Chemical Society. He also held the Austin M. Patterson Award of the Dayton Section, A.C.S., and the Nicholas Medal from the New York Section. A physical chemist, he was known for his careful editing of his colleague's scientific papers, having handled an average of 4,300 contributions per year. Dr. Lamb had charge of the nitrogen research laboratory in Washington, D. C., from 1919 to 1921, and previously was director of the Havermeyer Laboratory at New York University. During the first World War he served as a lieutenant colonel and was chief of the Defense Division of the Chemical Warfare Service. Returning to Harvard in 1923 as a teacher, researcher, and director of the laboratory, he was responsible for the design and erection of the Mallinckrodt and Converse Laboratories there and the new science building at Radcliffe College. Dr. Lamb served as dean of the Harvard Graduate School of Arts and Sciences from 1941 to 1943 and for years taught the elementary chemistry course at Harvard. He was president of the American Chemistry Society in 1931 and vice-president of the American Association for the Advancement of Science.

Frank A. Crane

Frank A. Crane, control manager of the Providence, R. I., plant of the U. S. Rubber Co., died in Providence on May 12 after a short illness. He was 63 years old. Born in New York City, Mr. Crane had been associated with the company for 43 years, starting as a branch store auditor when he was 19 years old. After various promotions, he was appointed control manager of the Providence plant in August, 1931, a position he held at the time of his death. He is survived by his wife and two sons.

William F. Higgins

William Fisher Higgins, who retired last year as New York manager of the Home Rubber Co., died on May 16 in Plainfield, N. J. Mr. Higgins had been New York manager of Home Rubber for 50 years. Mr. Higgins is survived by his wife, a daughter, two stepdaughters and a stepson.

Ernest H. Farmer

Dr. Ernest Harold Farmer, D. Sc., F.R.S., a senior research fellow of the British Rubber Producers' Research Association, died suddenly at his home in Radlett, Herts., England, on April 12. Born in 1890, Dr. Farmer was graduated from University College, Nottingham in 1911 with the degree of B. Sc. He served in the army during World War I and was badly wounded. After two years in the hospital he joined the Imperial College in 1919 as a research student and took his degree of D. Sc. in 1924. Dr. Farmer then joined the staff of the Imperial College and engaged in lecturing and research until 1938. In 1932, Dr. Farmer became associated with the work of the Rubber Growers' Association and when the British Rubber Producers' Research Association was formed in 1938, he was appointed head of the Organic Chemistry Section. Subsequently, he became assistant director of research. Early last year Dr. Farmer resigned his position because of ill health but continued to be associated with BRPRA as a senior research fellow until his death. He was elected a fellow of the Royal Society in 1948. Funeral services were held on April 17. His wife survives.

John B. Tower

John B. Tower, formerly executive assistant to the vice-president and general manager of the International Division of the U. S. Rubber Co., died on May 5 at Flower Fifth Avenue Hospital in New York City after suffering a heart attack. He was 70 years old. A veteran of 41 years service to the rubber industry, Mr. Tower joined U. S. Rubber in 1906 as a salesman in the Tire Division. In 1927, he was transferred to the U. S. Rubber Export Co., Ltd., now the company's International Division, as tire sales manager. He was named director of sales for the export company in 1933 and executive assistant to the general manager in 1941. In May, 1942, Mr. Tower was transferred to the company's Washington, D. C. office as a special representative on export matters. He served there throughout World War II and returned to his position as executive assistant to the general manager of the export company in 1945. He retired from active service with the company in February, 1947. Mr. Tower is survived by his brother.

Goodrich has come up with a new and interesting way to tell the story of American competitive enterprise. A new 32-page, four-color, cartoon booklet, "Johnson Makes the Team," interprets, fosters and shows the fruits of competitive enterprise by using the growth and development of the company as a case history.

Svend A. Gether

Svend A. Gether, sales division manager in the General Tire & Rubber Export Co., died on May 6 in St. Thomas Hospital, Akron, Ohio. He was 64 years old. Mr. Gether had been associated with General Tire for 20 years. Born in Copenhagen, Denmark, Mr. Gether was formerly associated with the Goodyear Tire & Rubber Co. in northern Europe and at one time was Goodyear branch manager in Germany. He joined General Tire in 1931 as a special representative to the Scandinavian countries. During World War II he was with the company's branch office in Minnesota. Mr. Gether is survived by his wife.

Lemol Polyvinyl Alcohol

From the large number of possible combinations of viscosity and degree of hydrolysis, the American Monomer Corp. of Leominster, Mass., has selected six standardized grades of polyvinyl alcohol for manufacture under the trade name "Lemol". Included are high viscosity types completely hydrolyzed for compounding with polyvinyl acetate emulsions and medium viscosity Lemols, which are also completely hydrolyzed and are particularly recommended for unsupported film. Also included are low viscosity completely hydrolyzed Lemols permitting higher working concentrations. The Lemols are said to provide tough, water soluble resins combining high tensile strength, adhesiveness and tear resistance with extreme inertness to aging, oxidation and bacterial action.

Arrowhead AcroSil No. 2184

Arrowhead Rubber Co., Downey, Calif., has announced the development of AcroSil No. 2184, newest in a line of silicone impregnated Fiberglas materials designed to meet the need for ducting, sleeves and couplings with resistance to high and low temperatures. The material combines a newly-developed silicone rubber compound with improved fabrication techniques. Items manufactured by the company from AcroSil No. 2184 are said to withstand temperatures as high as 700°F., remain flexible at —125°F; resist aging, ozone and most corrosive fluids and gases. The new silicone rubber compound is also said to be more resistant to abrasion than any previous silicone rubber material.

Open Armour Rubber Laboratory

The new $50,000 rubber laboratory of the Armour Research Foundation of the Illinois Institute of Technology was formally dedicated in Chicago on May 16. The laboratory, laid out as a producing plant in miniature, is the only one within a radius of 250 miles of Chicago that offers confidential research to private industry. Among firms which donated equipment to the new laboratory were the R. T. Vanderbilt Co., Pyle National Co., Grant Engineering Co., and the Rubber Engineering and Chemical Co.

Complete your RUBBER LIBRARY with the following:

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Directory of the Rubber Industry in the United States and Canada.

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Who's Who in the Rubber Industry—10,000 names and titles of important people.

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2. RECLAIMED RUBBER

By John M. Ball

The Story of an American Raw Material.

Complete history of the rubber reclaiming industry, including processes, reclaimers, scrap rubber data, properties and uses of reclaim, and statistics.

Cloth Bound 248 Pages $5.00* in USA; $5.50 elsewhere

3. LATEX AND RUBBER DERIVATIVES

By Frederick Marchionna

Volumes II and III (Vol. I not available)

Contains abstracts of all the literature (patents and articles) on Latex issued from July, 1932, to January, 1937, and on Derivatives from the earliest development through January, 1937. Covers both foreign and domestic literature.

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1937 Edition (Paper Bound), $1.00*; 1938-39 Edition (Cloth Bound), $4.00*; 1940-41 Edition (Cloth Bound), $5.00*; 1942-43 Edition (Cloth Bound), $5.00*.

5. RUBBER STATISTICAL BULLETIN and RUBBER NEWS SHEET

Issued by the Secretariat of the International Rubber Study Group the Bulletin contains complete world-wide statistics on rubber in over 50 separate tables on production, exports, imports, consumption, stocks, etc. The News Sheet is an interim report issued between editions of the monthly Bulletin.

Bulletin and News Sheet, $7.00 per year. Bulletin only, $5.00 per year. News Sheet not available separately.

6. RUBBER AGE

A monthly technical journal providing complete coverage of all branches of the rubber manufacturing industry. Each issue contains technical data on compounding, processing and production in general, as well as news reports on new materials, chemicals, machinery, equipment, government activities, personnel, etc. Special sections cover current chemical prices and statistics. Indispensable to those who wish to keep posted on rubber.

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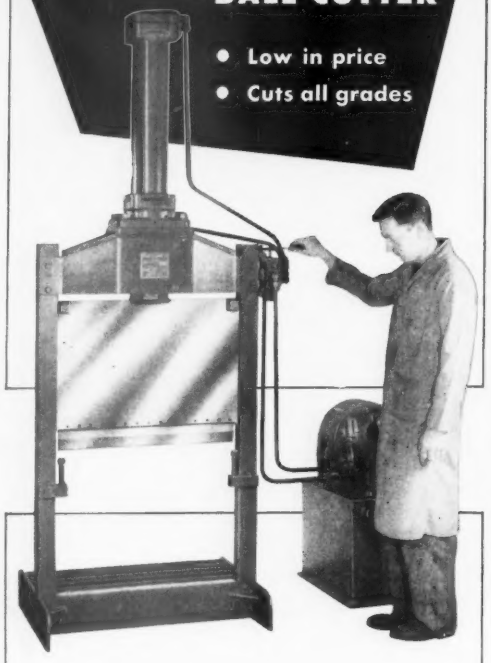

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NEW EQUIPMENT

Model 1000 Electronic Heater

A new electronic heating unit, said to be the most compact, efficient and rugged electronic heating equipment produced to date, has been introduced by W. T. LaRose & Associates, Inc., Troy, N. Y. Called the Thermall Model 1000, the unit has 15 KW output of

power at 65 megacycles and was especially designed for the molders of large rubber or plastic parts as a preheating device.

Designed to operate on 230 volts or 460 volts a.c., the new model is capable of preheating a load of rubber or plastic of 12 pounds to aproximately 250° F. in one minute. If a preheating time of longer than one minute can be taken, a larger load of approximately 15 to 20 pounds can be accommodated. The unit requires a floor space of only 36 by 34 inches, is 57 inches in over-all height, and weighs only 1,000 pounds. It is equipped with a heating electrode 18 by 16 inches in size, having a maximum opening of 6 inches and a minimum opening of 1½ inches. The complete unit is entirely portable, having four heavy-duty rubber tire casters.

In view of the recent rules and regulations promulgated by the Federal Communications Commission which limit "R.F. Radiations" from equipment of this type to 10 microvolts per meter at one mile, it should be noted that the Thermall Model 1000 has been tested for radiation at the factory and shows a radiation strength of only .2 microvolts per meter at one mile.

Research laboratories will be interested in a new **portable electric reciprocating stirrer** recently developed by the Research Appliance Co., West View Road, Pittsburgh 9, Penna. The unit can be used for the thorough, regular agitation of liquids in vessels of relatively small diameter, such as may be used in molecular weight determination by the boiling or freezing point method. The length of stroke is adjustable.

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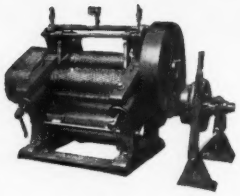

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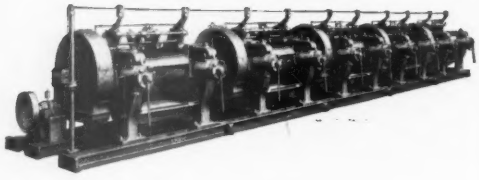

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New Pyro Surface Pyrometer

The introduction of a new surface pyrometer for accurate surface and sub-surface temperature measurements has been announced by the Pyrometer Instrument Co., Bergenfield, N. J. Called the New Pyro Surface Pyrometer, the instrument is said to incorporate features not found in any other instruments of this type. It is available with a selection of 14 different types of thermocouples and extension arms to meet every surface and sub-surface temperature measuring problem. It can be equipped with a new quick-change connector which permits the thermocouples to be snapped and locked onto the extension arms in a matter of a second, without any tightening needed. Thermocouples are interchangeable without adjustment or recalibration.

Another exclusive feature of the New Pyro Surface Pyrometer is the Pyro Lock-Swivel which permits locking thermocouples at any desired angle without danger of their jarring loose while the temperature measurement is being made. Temperature readings can be taken readily from the large 4¾-inch direct-reading dial. In addition, the accuracy and precision of readings is assured due to the automatic cold end compensation feature of the instrument. The new pyrometer is shock, dust and moisture-resistant and the shielded steel meter housing is designed to withstand rough usage. It is available in five different temperature ranges for all laboratory and plant use.

Measuring speeds as low as a fraction of an rpm is said to be possible with new rugged, **heavy-duty tachometer heads** now available from the Metron Instrument Co., Denver 9, Colorado. These heads, when used with the company's tachometer indicators, recorders or controls, are said to be ideal for measuring speeds of extruders, ovens, dryers, conveyor belts and similar installations where ruggedness counts in low speed measurement. Speeds up to 199 rpm for full scale indication can be measured.

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Rubber Deterioration Tester

A new machine which is reported to immediately reveal excessive contamination and deterioration in natural rubber has been developed by the Firestone Tire & Rubber Co., Akron, Ohio, and presented to the General Services Administration. Called the Rubber Deterioration Tester, it employs powerful infra-red light rays

which penetrate the rubber at temperatures up to 280° F. When excessive copper and manganese are present, the rubber test sample gives the appearance of a tell-tale viscous liquid formation within 10 minutes. When rubber has deteriorated due to improper preparation or storage, the test sample will break down quickly while the sample of good rubber will resist breakdown for longer periods of time. Until the Rubber Deterioration Tester was perfected, the testing for impurities by chemical analysis required 24 hours and the test had to be performed in a laboratory. The new machine is portable and can be used by an inspector at the docks when the rubber is received.

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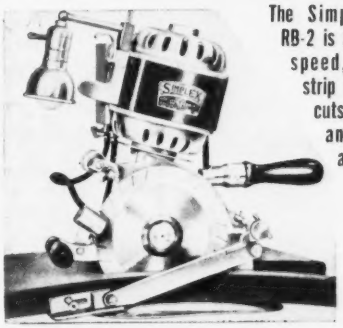

The Simplex Model RB-2 is a new high-speed, portable strip cutter that cuts efficiently and accurately.

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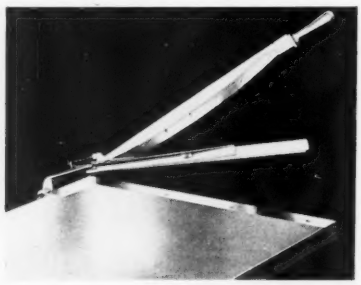
Bench Model Jacques, Jr., Cutter

An improved bench model of the Jacques, Jr., Cutter, which is used in the cutting of rubber, plastics, paper and other light materials, and is said to be especially useful in cutting continuous material from rolls or strips, has been announced by the Hobbs Manufacturing Co.,



26 Salisbury St., Worcester 5, Mass. This cutter is now manufactured exclusively by the company. Formerly, similar models were known as the "Alfa" cutters and were made by the Alfa Machine Co.

This newest Jacques cutter, which may be attached to any bench or table, has numerous applications. Features include an exclusive, automatic clamp which securely holds the material to be cut. The clamp has a surface of sponge rubber and automatically presses against the material as the blade is brought down in cutting position. A spring tension device presses the entire blade area against the guide, thus assuring clean, accurate cuts without adjustments. A safety spring, attached to the blade handle, holds the blade in open position to prevent accidental dropping and cutting. The new model is available in three different sizes to cut up to 24, 30 or 36-inch widths.

Hamerslag Equipment Co., 7 Front St., San Francisco 11, Calif., is currently marketing the **Heco Partitioned Pallet and Spacer,** a new device designed for handling and storing tires, batteries, wire, etc. By the use of a spacer system, the pallet may be divided into as many partitions as necessary, depending on the size and shape of the merchandise involved. Articles can be removed from any pallet in the stack without disturbing the others.

Tel-Alarm, a new type of **automatic alarm units** for remote signalling of failure or other-than-normal operation of valves, pumps, heaters and other kinds of equipment in process operations, has been introduced by the Tigerman-Anderson Co., 4332 North Western Ave., Chicago, Ill. All Tel-Alarm units are self-contained and plug in to the chassis as easily as a vacuum tube.

Do-All Co., Des Plaines, Ill., is currently marketing a **stick-type wax lubricant** for lubrication of cutting tools, threaded metal fastenings, and other metallic forming tools. Called "Tool-Saver," it is a special formula of fine wax ingredients and is designed to reduce considerably the friction and the accompanying heat in machining operations.

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- ★ Improve working conditions
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- ★ Capital investment is less
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Producing strong flexible hose with this Fidelity Hose Reinforcement Machine at lower cost puts you ahead of competition. Produced in continuous lengths at over 1,000 feet every hour, *Knit*-Reinforced is widely used as garden, automotive heater and radiator, and industrial hose.

The Fidelity *Knitter* uses only 4 yarn cones, each weighing 10 pounds. *Knitting* eliminates costly rewinding and treating operations and drying time. Diameters are uniform; adhesion is stronger. Automatic electric stop motions and other advanced features cut maintenance and down time.

Automatic Take-up Reel Stands are available for both single or double deck *Knitters*. To see why top companies choose Fidelity, read our literature proving its advantages. Write today for Catalog I.

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REVIEWS

BOOKS

Pressure-Volume-Temperature Relationships of Organic Compounds. (3rd Edition). By Robert R. Dreisbach. Published by Handbook Publishers, Inc., Sandusky, Ohio. 11 x 8½ inches. 315 pp. $10.00.

Fractionation of styrene must be carried out at sub-atmospheric pressures. When the Dow Chemical Co. began working with styrene some ten years ago it became necessary to accurately determine the boiling point of the material at various pressures. Since these values were not known at the time, reference was made to a Cox Chart and vapor pressure-temperature tables constructed therefrom. Later, similar tables for compounds other than styrene were prepared. Three privately printed editions of these tables were made available by Dow, with whom the author is associated, and were found to be extremely useful. The current edition is the first to be made generally available.

The book is actually a reference manual containing a compilation of accurate data on vapor pressure-temperature and latent heat of vaporization which are useful in both the laboratory and the plant. It presents simple methods for obtaining values of the boiling point at any pressure for all organic compounds belonging to any one of twenty-three families, values of latent heats of vaporization for these compounds, and values of the flash points of the compounds. In addition, it contains simple equations for securing additional data, such as accurate values of the rate of change of boiling point with pressure and critical temperatures of polar and non-polar compounds. Similar data for any compounds not belonging to any of the twenty-three families covered can be obtained by reference to the table for the nearest related family.

A complete index is included which refers to the section where full explanations with examples are given for reading the tables. Page references are given for explanations, with examples, for the use of all equations. A discussion of the various families covered is contained in an appendix.

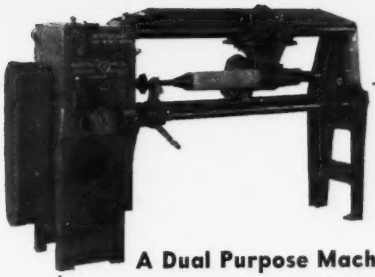
•

Modern Chemical Processes. (Vol. 2). Published by Reinhold Publishing Corp., 330 West 42nd St., New York 36, N. Y. 8 x 11 in. 300 pp. $5.00.

Practically every issue of "Industrial and Engineering Chemistry" includes a collaborative report covering some chemical process prepared by a member of the editorial staff and one or more members on the technical staff of the cooperating organization. Two years ago it was decided that every two years twenty-four such articles will be made available in book form so that as the series is extended it will become an indispensable source of modern technological information. The first volume, issued in 1950, contained twenty-three articles covering such processes as the low temperature manufacture of chemical rubber, phenolic resin glues for plywood, and fine chemicals from coal. The current volume contains twenty-four additional descriptive articles.

The articles covered in the current volume include the following: (1) Chemicals from Fats; (2) Amyl Compounds from Pentane; (3) Phenol by Sulfonation; (4) TNT into Phloroglucinol; (5) Commercial Development of Glyoxal; (6) Bacitracin; (7) Reagent Grade Chemicals; (8) Lithium and Its Compounds; (9) Calcium Cyanamide; (10) Cyanides from the Coke Oven; (11) Pioneer Surfactant; (12) Edible Oils; (13) Cane Sugar Refining; (14) Brewing; (15) Food Yeast from Sulfite Liquor; (16) Modern Winemaking; (17) Platinum Reforming of Gasoline; (18) Liquid Fuels from Oil Shale; (19) Modern Sulfur Mining; (20) Sulfur from Sour Gases; (21) Magnesia-Base Sulfite Pulping; (22) Kraft Pulp Production; (23) Kraft Papermaking; (24) Rubber Reclaiming.

There is also a foreword by Dr. Walter J. Murphy and a cross-referenced subject index.



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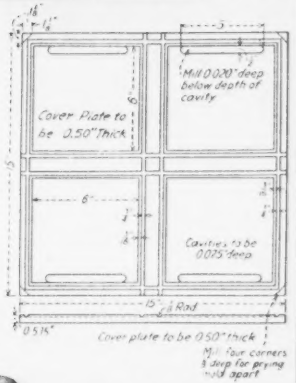
Cover Plate to be .250" Thick
Mill 0.020" deep below depth of cavity
Cavities to be .0025 deep
15" Rad
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Cover plate to be .050" thick
Mill four corners .1 deep for prying mold apart

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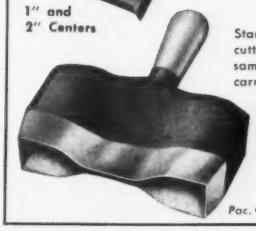

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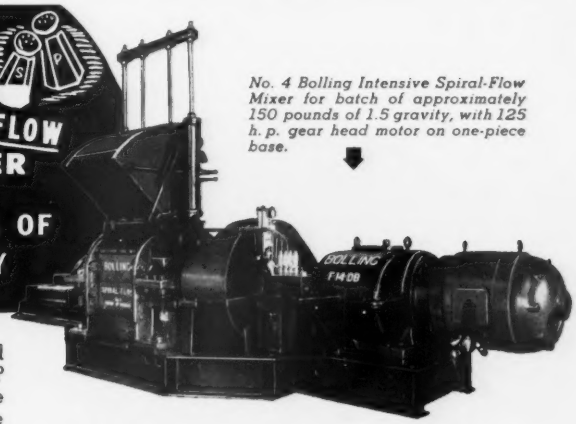

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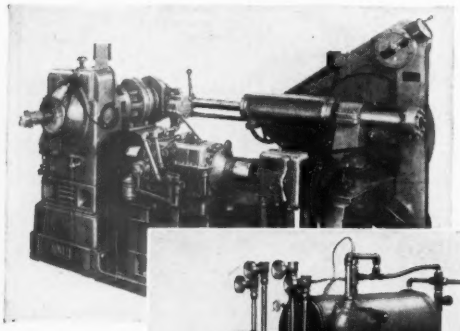
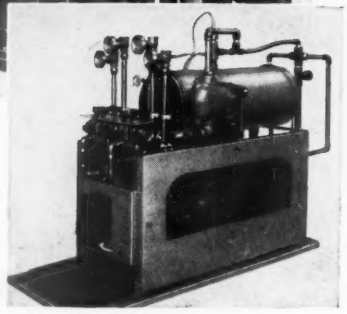
To the Wire Insulating Industry

The room temperature compound process and associated equipment recently developed by the Western Electric Company, Incorporated, offer nine important advantages. These advantages begin with the storage of completely mixed, ready-to-extrude, rubber, GR-S, or Neoprene compounds and extend to a smoother and improved appearance for the finished product.

The complete extruder vulcanizing portion of the room temperature compound process is available to insulated wire producers* from John Royle and Sons who, for seventy-two years, have been building extruding machines to meet the most exacting process requirements.



↑ Royle #2 (3¼") Continuous Vulcanizing Extruder for room temperature compound process.



→ Royle extruder temperature control unit utilizing steam and hot water.

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Modern Pyrometry. By Charles H. Campbell. Published by Chemical Publishing Co., Inc., 212 Fifth Ave., New York 10, N. Y. 5½ x 8¾ in. 150 pp. $4.00.

Developed from a lecture prepared for the Cleveland Chapter of the American Society for Metals, given in the 1947 Spring Educational Series, this book describes the principles and new developments in pyrometry and covers a selected group of pyrometric systems which gives the reader an over-all picture of the techniques used and the equipment available for temperature measurement and control. Among the topics covered are (1) types and applications of thermocouples, lead wire and protection tubes; (2) temperature indicators, recorders and controllers; (3) resistance thermometers, mercury and bimetallic systems, and (4) applications, care and maintenance of pyrometers. A glossary of terms used in automatic control is included.

BOOKLETS, CATALOGS, etc.

Some Uses of Rubber in Shipbuilding and Marine Engineering. By M. Ralph Horne. British Rubber Development Board, Market Buildings, Mark Lane, London E.C.3, England. 6 x 8½ in. 12 pp.

A number of interesting applications of rubber in shipbuilding and marine engineering are elaborated upon in this reprint of an article which originally appeared in "Rubber Developments," quarterly journal of the British Rubber Development Board. The question of engine mountings is discussed at some length, as are seals, couplings, trunnions, etc. Also discussed are linings, insulations and deck coverings. The booklet is illustrated with photographs and drawings.

•

McDonnell Boiler Water Level Controls and Safety Devices. McDonnell & Miller, Inc., 3500 N. Spalding Avenue, Chicago 18, Ill. 8½ x 11 in. 24 pp.

Designed primarily as a workbook, this publication helps in the selection and application of the company's safety devices for steam and hot water boilers, and heaters. The booklet is organized to display the various products according to function. Included are many specialized variations adapted for original equipment use, plus various components as they have been utilized for liquid level control applications. Capacity curves, dimension drawings and engineering information are included to guide proper selection.

•

The Control of Industrial Dust. (Bulletin No. 909A.) Pangborn Corp., Hagerstown, Md. 8½ x 11 in. 28 pp.

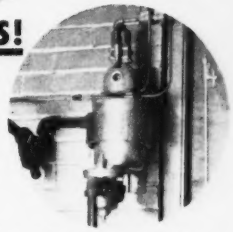
The purpose of this booklet is to describe Pangborn dust control and its many applications. Case histories of users of the equipment are documented with photographs and performance data indicating savings achieved through the installation of dust control equipment. Specifications on sizes and dimensions of Pangborn equipment are listed as well as construction details. Application and engineering data are tabulated according to types of dust, and collection requirements.

•

Howe Scales. (Catalog No. 11). Howe Scale Co., Rutland, Vt. 8½ x 11 in. 28 pp.

This catalog is a handy reference featuring the complete line of modern scales for every industrial need as manufactured by the company. It includes a selection of a thousand popular Howe scales weighing from 1/64th of an ounce to 400 tons. Included are complete specifications, spot illustrations and essential information. A simple index makes it easy to find any scale. The catalog also shows some of the hand trucks manufactured by the company.

THIS MIGHT HAVE BEEN *prevented* by... THIS!



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REVIEWS (CONT'D)

Technical Cooperation with Underdeveloped Countries. By Philip C. Newman, John E. Ullmann and Robert S. Aries. Published by Chemonomics, Inc., 400 Madison Avenue, New York 17, N. Y. 6 x 9 in. 96 pp. $5.00.

Current interest of many American manufacturers is in the opportunities offered by economically underdeveloped countries. This is the first book which reviews and analyzes thoroughly what can be done in underdeveloped areas in terms of concrete industrial planning. The subject is discussed both from a theoretical and a practical aspect. After defining the problem of technical assistance and the conditions and limiting factors in industrial growth, the book reviews methods of industrialization which have been used in the past, details and discusses the basis of Point 4 industrialization and its potentials, and emphasizes the activities of local governments and national and international organizations. Four Latin American countries and the Colombo plan are examined as case histories in such development. Action by private investors, naturally, receives extensive treatment.

•

Nordstrom Corrosion-Resistant Valves. (Bulletin V-217). Rockwell Manufacturing Co., 400 North Lexington Avenue, Pittsburgh 8, Penna. 8½ x 11 in. 36 pp.

This bulletin pictures and explains the various applications in process industries of Rockwell meters, remote registration unit, and Rockwell-built Nordstrom valves. Described in detail are many models of the Nordstrom valve line including straight-way and multi-port steel and semi-steel valves, semi-steel steam jacketed and steel hypreseal valves. Other Nordstrom products described are Nordco bronze, Mercoloy, stainless steel, ni-resist, monel, and nickel valves specifically for the erosive and corrosive conditions typical of many processing applications.

•

Truck Tire Data Book. Dayton Rubber Co., Dayton 1, Ohio. 8½ x 11 in. 40 pp.

Issued in loose-leaf, spiral binder form to permit addition of new pages, this booklet contains tables of major items hauled by truckers, enabling them to readily estimate truck load capacities for different materials, complete data on ways to get maximum truck tire mileage, and tire saving practices sponsored by the Rubber Manufacturers Association. The booklet also shows truckers how to avoid over-loading abuses that result in excessive, dangerous tire wear, correct inflation charts, when and how to rotate truck tires, how to space tires on dual axles, and new and improved ways to repair cuts and abrasions.

Cuts? Cracks?
SEE PAGE 298

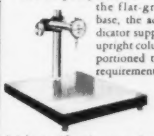
FOR *Strictly* IMPERSONAL INSPECTION CHOOSE AMES DIAL COMPARATORS

Ames Dial Comparators make the inspection of duplicate parts an extremely simple, rapid and accurate operation. Ames Comparators are strictly impersonal in their accuracy – the results being in no way dependent on the skill or judgment of the operator. The pressure of the gauging members against the work is mechanically determined and therefore uniform.
Check the Ames Dial Comparators shown – one of them may solve a Quality Control problem for you.

Ames No. 1 is an easily adjustable bench model dial comparator that measures objects up to 2" in cross section. This comparator is designated *Ames No. 1W* when equipped with a dead-weight and contact to ASTM specifications for measuring resilient materials.

Ames No. 2 is a compact bench model dial comparator for measuring sheet metal, glass, hard rubber. *Ames No. 2W* is similar, but is furnished with dead-weights and contacts to ASTM specifications for checking textiles, plastics, sheet rubber, etc.

Ames No. 13 features flat-ground, cast-iron base of ample size for using V-blocks and locating fixtures. The No. 13 can be fitted with a fine adjustment for close setting. Adjustable bracket holds any Ames Indicator.



Ames No. 130 is designed especially for inspecting comparatively large and odd-shaped parts. For this reason, the flat-ground steel base, the adjustable indicator support, and the upright column are proportioned to the user's requirements.

Send us your Quality Control job specifications, and we will supply complete details and proposal without obligation.

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Continuing research and development in our laboratory and rigid production control has made us the leader in this field.

The services of our laboratory are at your disposal in solving your compounding problems.

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Akron, Boston, Trenton, Chicago, Denver, Los Angeles

Westinghouse Products for Air Handling, Air Cleaning and Air Conditioning. Sturtevant Division, Westinghouse Electric Corp., Hyde Park, Boston 36, Mass. 8½ x 11 in. 56 pp.

This booklet concerns itself with such problems as how to heat and ventilate plant areas, how to size an air conditioning installation, how to exhaust fumes, gases or dusts, how to convey metal chips, sawdust, wood or grains, and how to eliminate air-borne dirt. The various ways in which air can be put to work are described and illustrated. Frequently used reference data is also included. One section of the booklet is devoted to condensed information on Westinghouse-Sturtevant products.

•

High-Speed Automatic Gaging and Sorting. Federal Products Corp., 1144 Eddy St., Providence, R. I. 8½ x 11 in. 20 pp.

The various types of automatic gaging methods and gages designed and built by the company are described and illustrated in this bulletin. All of these employ electro-mechanical and electronic systems for obtaining the desired results. They differ from the straight electrical sorting gages in that the electronic system enables parts to be sorted into numerous categories according to requirements. Some of the products discussed include multi-dimension, continuous measuring, machine control and automatic sorting gages.

•

Developing Your Men Builds Profits. (API Manual 1500). American Petroleum Institute, 50 West 50th St., New York 20, N. Y. 8½ x 11 in. 64 pp. $1.00.

The technique of training marketing personnel, and the profitable results that can be obtained from such a program, are spelled out in this new handbook. The publication contains general training principles, suggestions on how to set up a training program, patterns of programs for all phases of petroleum marketing, and a catalog of recommended references and tested training aids.

•

Rubber in Yachts and Small Craft. By Humphrey Barton. British Rubber Development Board, Market Buildings, Mark Lane, London, E.C. 3, England. 6 x 8½ in. 12 pp.

This interesting reprint of an article which originally appeared in "Rubber Developments," quarterly journal of the British Rubber Development Board, relates the various uses to which rubber, in all its forms, is used in yachts and other small craft. Its use in anti-vibration mountings, rigging, clothing, flooring and decking, for buoys, rafts, hose, fenders, etc., is described in some detail with accompanying photographs.

Cuts? Cracks?
SEE PAGE 298

EXCLUSIVE AGENTS

RCMA
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Centrifuged Latex

REVERTEX
72-75% Latex Concentrate

- Normal Latex
- GR-S Latex Concentrate
- Natural and Synthetic Latex Compounds
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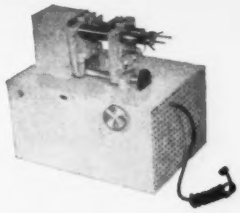

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MARKETS

Rubber – Crude, Reclaimed and Scrap – Cotton – Ducks – Tire Fabrics – Sheetings

NEW YORK, JUNE 5, 1952

Natural Rubber

Rubber companies in Malaya, deciding there is no hope for an early rise in the price of rubber, recently called a meeting with labor leaders to discuss lower wage rates from July 1. Wages are computed on three scales based on the quarterly average of rubber. This agreement was made last year when owners were confident the price of rubber would remain high. They are now certain the average price for the current quarter will be less than 32c.

In the United States, the price of natural rubber has declined to levels that have attracted a number of smaller manufacturers. In many instances there has been reported a substitution of natural for synthetic. However, the trade does not believe that a marked trend in this direction will develop in the immediate future. There is great expense and effort involved in a changeover. There is also the fact that manufacturers have become accustomed to the synthetic commodity. There may be a great deal of hesitancy for manufacturers to convert to natural unless there is every indication of an uninterrupted flow of natural rubber at reasonable levels.

Ceylon's controversial policy on rubber, which has permitted the shipment of nearly 15,000 long tons to Communist China since last October over protests from the United States, will be re-examined by the new government which was recently elected. The government has under consideration a United States proposal to buy the complete output of Ceylonese rubber—about 100,000 tons a year—at the market price. Through this arrangement, the Ceylon government wil be able to avoid dealings with Communist China and yet maintain her economic trade balance.

Quotations for the markets in London and Singapore follow:

London Markets

(Standard Smoked Sheets)

July-September	29.46 - 29.75
October-December	28.58 - 28.87

Singapore Market

(Standard Smoked Sheets)

July	26.69 - 26.80

Domestic Natural Rubber Prices

Grade	Price (per lb.)
Ribbed Smoked Sheets No. 1	38c
No. 2	37¼
No. 3	36½
No. 4	31½
No. 5	27
Thin Latex No. 1X	46
No. 1	45
No. 2	39
No. 3	36
Thick Latex No. 1X	46
No. 1	45
No. 2	39
No. 3	36
Thin Brown No. 1X	33
No. 2X	30½
No. 3X	25
No. 1	28
No. 2	24
No. 3	23
No. 4	21
Blanket (Amber) No. 2	28
No. 3	24
No. 4	23
Smoked Blanket No. 1	25
No. 2	23
Flat Bark	17
Beni Bolivian Para	28
Liquid Latex	62½

Note: These are General Services Administration Prices (plus service charges) for delivery ex G.S.A. shipping points.

Scrap Rubber

The scrap rubber market continues at the low level maintained during the past few months. Prices are generally considered as nominal, reflecting the inactivity of the market. Dollar shortages abroad continue to curb export sales. The prices below represent those established by the Office of Price Stabilization:

(Prices Delivered Akron)

Mixed tires	ton	$26.00
Mixed beadless tires	ton	34.00
Light colored carcass	ton	130.00
Black carcass	ton	50.00
No. 1 peelings	ton	65.00
No. 2 peelings	ton	42.00
No. 3 peelings	ton	38.00
Buffings	ton	30.00
Truck and Bus S.A.G.	ton	28.00
Passenger S.A.G.	ton	28.00
Mixed S.A.G.	ton	26.00
Light colored tubes	lb.	.16
Natural rubber red tubes	lb.	.16
Natural rubber black tubes	lb.	.11½
Mixed natural rubber tubes	lb.	.10
Butyl rubber tubes	lb.	.057
GR-S rubber tubes	lb.	.02
Mixed synthetic tubes	lb.	.03

Reclaimed Rubber

Approximately 23,906 long tons of reclaimed rubber were consumed in April of this year, against the 24,797 long tons consumed in the previous month. Consumption of reclaim in the first four months of 1952 is estimated at 99,774 long tons by the U. S. Department of Commerce, considerably below the 126,353 long tons consumed in the first four months of the preceding year. OPS-established prices for reclaimed rubber follow:

(Prices for All Areas Except Calif.)

Premium Grade Whole Tire	.10½
First Line Whole Tire	.10
Second Line Whole Tire	.09½
Third Line Whole Tire	.09¼
Fourth Line Whole Tire	.08¾
Black Carcass	.14½
No. 1 Light Colored Carcass	.20¾
No. 1 Select Peel	.11¾
No. 1 Peel	.10½
Butyl Tube Reclaim	.14½
S.P. Natural Rubber Black Tube	.21
Natural Rubber Black Tube	.20
Natural Rubber Red Tube	.24¼
Natural Rubber Gray Tube	.24¾

Cotton Tire Fabrics

The suspension of controls by OPS over raw cotton and most textile yarns is not expected to have an immediate effect on the cotton tire fabric market which continues at fairly nominal levels. What market activity there is seems to be centered about chafer fabrics. Current prices for fabrics and chafers have been revised downward to more accurately reflect market conditions.

Standard, Peeler, 12/4/2	lb.	.88
Extra Staple, Peeler, 12/4/2	lb.	.93

Chafers

14.4 oz. (per square yard)	lb.	.86
9.25 oz. (per sq. yard)	lb.	.81½
11.65 oz. (per sq. yard)	lb.	.75
8.9 oz. (per sq. yard)	lb.	.81

Cotton

The price of middling uplands on the New York Cotton Exchange has swung in a range of 2.15c since our last report (May 5), high for the period being 41.45c reached on June 4, and low being 39.30c reached on May 6 and again on May 15. The average price for middling uplands for the month of May was 39.68c based on 21 trading days. This compares with an average of 41.79c in April.

On May 19, OPS suspended ceiling prices on raw cotton. Ceiling prices on raw cotton will be reimposed, OPS said, when the sale of a cotton futures contract in any active leading month is reported at 43.39c a pound or higher. Ceiling prices will also be reimposed when the official average price of the 10 spot markets is reported by the Department of Agriculture at 43.05c a pound or higher for 15/16 inch middling uplands.

Delegates of leading producing and consuming countries of the International Cotton Advisory Committee who met in Rome in a ten-day session ending on May 23, rejected an American-backed plan for an international cotton marketing agreement. Final decision of the meeting was to "remand the proposal for further study."

Main obstacle to the new attempt to reach an international cotton agreement generally was described as the determination of some importing countries to stand by a free trade concept. An American-favored proposal called an "International Cotton Contract" would establish cotton quotas and set up a "buffer stock." The trade quotas would mean the holding off the market of stocks by export countries in case of a surplus, and a division of existing stocks by importing countries in case of a shortage.

Quotations for middling uplands on the Exchange follow:

	May 5 Close	June 5 High	June 5 Low	June 5 Close
July	38.25	40.17	39.65	39.65
Oct.	36.21	37.36	36.90	36.92
Dec.	35.92	37.01	36.62	36.64

Synthetic Rubber

(Dry Types—Per Pound)

Butaprene NF	.465 - .475
Butaprene NL	.475 - .485
Butaprene NAA	.515 - .525
Butaprene NXM	.550 - .560
Chemigum 30N4NS	.400 - .470
Chemigum 50N4NS	.400 - .470
Chemigum N3	.450 - .520
G-E Silicone Rubber (compounded)	3.20 - 4.40
G-E Silicone Gum (not compounded)	—— - 5.00
GR-I	—— - .2075
GR-S	—— - .230
Hycar OR-15	.580 - .590
Hycar OR-25	.500 - .510
Hycar OS-10	.550 - .560
Neoprene Types CG and AC	—— - .500
Neoprene Type E	—— - .650
Neoprene Types FR and KNR	—— - .800
Neoprene Type GN	—— - .380
Neoprene Type GN-A	—— - .380
Neoprene Type RT	—— - .400
Neoprene Type S	—— - .380
Neoprene Type W	—— - .400
Paracril B	.500 - .510
Paracril BJ	.500 - .510
Paracril C	.580 - .590
Silastic (compounded)	2.35 - 4.40
Thiokol Type A	—— - .470
Thiokol Type FA	—— - .640
Thiokol PR-1	—— - .950
Thiokol Type ST	—— - 1.000

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CURRENT MARKET PRICES

Of Rubber Chemicals and Compounding Ingredients

JUNE 5, 1952

Prices are, in general, f.o.b. works. Range of prices indicates grade or quantity variations.

Abbreviations: bbls., barrels; c.l., carlot; cyl., cylinder; dlvd., delivered; dms., drums; l.c.l., less than carlot; M.B., masterbatch; min., minimum; ref., refined; sap., saponified; sp., special; syn., synthetic; t.c., tank cars.

*For Export Only

The arrangement of this section closely follows the Chemical Section of the 1951-52 RUBBER RED BOOK. Readers are referred to the RUBBER RED BOOK for the correct classification of any material or brand name. Suppliers of every material are contacted for price information. However, only those materials are listed for which quotations have been furnished within the past six months. The quotations are not guaranteed and prospective purchasers should contact suppliers for information. Suppliers are requested to send current price information to the Market Editor, RUBBER AGE.

ACCELERATORS

A-1 (Thiocarbanilide)	lb.	.48	- .55
A-32	lb.	.59	- .69
A-77	lb.	.47	- .60
A-100	lb.	.47	- .60
Accelerator No. 8	lb.	—	- .98
Accelerator—49	lb.	.48	- .49
Accelerator—552	lb.	—	- 2.00
Accelerator—808	lb.	.59	- .61
Accelerator—833	lb.	1.13	- 1.15
Altax	lb.	.42	- .44
Ancap*	lb.	.34	- .36
Ancatax*	lb.	.42	- .44
Ancazate* BU (ET & ME)	lb.	—	- 1.00
Ancazide* ET	lb.	—	- 1.00
ME	lb.	—	- 1.10
Arazate	**lb.**	—	**- 2.16**
Beutene	**lb.**	**.59**	**- .61**
Bismate, Rodform	lb.	—	- 3.00
Butasan	**lb.**	—	**- 1.00**
Butazate	lb.	—	- 1.00
Butyl Eight	lb.	1.00	- 1.35
Captax	lb.	.34	- .36
C-P-B	lb.	—	- 1.95
Cumate, Rodform	lb.	—	- 1.45
Dibenzo G-M-F	lb.	—	- 2.50
Diorthotolylguanidine	lb.	.52	- .53
Diphenylguanidine	lb.	.43	- .44
El-Sixty	lb.	.45	- .52
Ethasan	**lb.**	—	**- 1.00**
Ethazate	lb.	—	- 1.00
Ethex	**lb.**	—	**- 1.00**
Ethyl Thiurad	lb.	—	- 1.00
Ethyl Tuex	lb.	—	- 1.00
Ethylac	lb.	.88	- .90
G-M-F	lb.	—	- 2.50
Good-rite Erie	lb.	.35	- .37
Guantal	lb.	.55	- .62
Harvex	lb.	.52	- .57
Hepteen Base	lb.	.42	- .44
	lb.	1.80	- 1.85
Ledate, Rodform	lb.	—	- 1.00
Mercaptobenzothiazole	lb.	.34	- .36
Mercaptobenzothiazyl Disulfide	lb.	.42	- .44
Mertax	lb.	.50	- .57
Methasan	lb.	—	- 1.00
Methazate	lb.	—	- 1.00
Monex	lb.	—	- 1.10
Mono Thiurad	lb.	—	- 1.10
Morfex	lb.	.59	- .61
2-MT	lb.	—	- .75
NA-22 (for neoprene)	lb.	—	- 1.50
O-X-A-F	lb.	.43	- .45
Pentex	lb.	—	- 1.00
Flour	lb.	—	- .20
Permalux (for neoprene)	lb.	—	- 2.10
Phenex	lb.	.49	- .54
Pip-Pip	lb.	—	- 2.25
R-2 Crystals	lb.	—	- 2.20
Rotax	lb.	.44	- .46
RZ-50	lb.	—	- 1.00
SA 52	lb.	—	- 1.10
SA 57	lb.	—	- 1.00
SA 62	lb.	—	- 1.00
SA 66	lb.	—	- 1.45
SA 67	lb.	—	- 1.00
SA 77	lb.	—	- 1.00
Safex	lb.	—	- 1.15
Santocure	lb.	.68	- .75
Selazate	lb.	—	- 1.45
Selenac (Ethyl, Methyl)	lb.	—	- 1.45
Setsit-5	lb.	.75	- 1.05
SPDX-GH (tons)	lb.	.64	- .66
GL	lb.	—	- .95
Tellurac	lb.	—	- 1.45
Tepidone	lb.	—	- .55
Tetrone A	lb.	—	- 1.85
Thiofide	lb.	.42	- .49
S	lb.	.46½	- .53½
Thionex	lb.	—	- 1.10
Thiotax	lb.	.34	- .41
Thiurad	lb.	—	- 1.10
Thiuram E	lb.	—	- 1.00
M	lb.	—	- 1.10
Trimene	lb.	.54	- .56
Base	lb.	1.03	- 1.06
Tuads, Ethyl	lb.	—	- 1.00
Tuads, Methyl	lb.	—	- 1.10
Tuex	lb.	—	- 1.10
Ultex	lb.	1.00	- 1.05
Unads	lb.	—	- 1.10
Ureka Base	lb.	.66	- .73
Vitasan Crystals	lb.	.48	- .53
Vulcacure NB	lb.	—	- .45
ZB	lb.	—	- .85
ZE	lb.	—	- .85
ZM	lb.	—	- .85
Z-B-X	lb.	—	- 2.45
Zenite	lb.	.42	- .44
A	lb.	.50	- .52
Zenite Special	lb.	.43	- .45
Zetax (uncoated)	lb.	.43	- .45
Zimate, Butyl	lb.	—	- 1.00
Zimate, Ethyl	lb.	—	- 1.00
Zimate, Methyl	lb.	—	- 1.00

ACTIVATORS

Blue Lead Sublimed (dlvd.)	lb.	.13¼	- .14¼
Fish Oil, Hydrogenated, Fatty Acid			
Hydrofol Acid (dlvd.)	lb.	.11¼	- .15
Hyfac 430 (dlvd.)	lb.	.15½	- .16¾
Neo-Fat H.F.O. (dlvd.)	lb.	.14½	- .15¾
Stearex Beads (dlvd.)	lb.	.12	- .13¾
Lime, Hydrated			
Arrowhead	ton	—	- 20.65
Marblehead	ton	—	- 15.00
Sierra	ton	—	- 19.50
Litharge			
Eagle (dlvd.)	lb.	—	- .1775
SB (dlvd.)	lb.	—	- .1775
Magnesium Oxide, Heavy			
General Magnesite 500	lb.	.05	- .06½
600	lb.	.06	- .08
Michigan No. 15	lb.	.0550	- .0600
Permanente	lb.	.05	- .06½
Magnesium Oxide, Light			
Baker's (Neoprene Grade)	lb.	—	- .31
General Magnesite (Neoprene Grade)	lb.	—	- .30
General Magnesite No. 101	lb.	—	- .19
General Magnesite Standard	lb.	—	- .22
K & M (Neoprene Grade)	lb.	.30	- .31
Maglite D	lb.	—	- .25
M	lb.	—	- .31
Marine's (Neoprene Grade) (l.c.l.)	lb.	—	- .31
Michigan No. 30	lb.	—	- .24
No. 40 Extra Light	lb.	—	- .31
Witco Extra Light	lb.	.32	- .35
Oleic Acid			
Emersol 210 (dlvd.)	lb.	.11½	- .14½
L.C.P. Red Oil	lb.	.11½	- .14½

ACTIVATORS (Cont'd)

Palm Oil Fatty Acid (c.l.)	lb.	.11½	- .14½
Potassium Oleate (drums)	lb.	.45	- .55
Red Lead			
Eagle	lb.	—	- .1875
No. 2 RM (dlvd.)	lb.	—	- .1875
Sodium Laurate, 75%	lb.	.64	- .74
Sodium Oleate, 75%	lb.	.45	- .55
Paste (drums)	lb.	—	- .20
Sodium Stearate, 75%	lb.	.45	- .55
USP Grade (drums)	lb.	—	- .37
Stearic Acid, Single Pressed			
Emersol 110 (dlvd.)	lb.	.11¼	- .12½
Groco 53	lb.	.11¼	- .12½
Stearex B (dlvd.)	lb.	.15½	- .16¾
Stearic Acid, Double Pressed			
Groco 54	lb.	.11¼	- .13
Stearic Acid, Other			
Neo-Fat 1-58	lb.	.1190	- .1315
1-60	lb.	.1400	- .1525
1-65	lb.	.1450	- .1575
White Lead Basic Carbonate	lb.	.1690	- .1790
White Lead Basic Sulfate	lb.	.1919	- .2019
Zinc Laurate			
Laurex	lb.	.26	- .27
Zinc Stearate	lb.	.37	- .39
Aquazinc	lb.	.26	- .35

Unclassified Activators

Actifat (dms.)	lb.	—	- .18
Aktone	lb.	.22	- .23
Barak	lb.	—	- .60
Curade	lb.	.57	- .59
D-B-A	lb.	—	- 1.95
Dibutylamine (dlvd.)	lb.	.53	- .55¼
MODX	lb.	.295	- .345
Polyac	lb.	—	- 1.60
Ridacto (drums)	lb.	.25	- .26
Snodette (dlvd.)	lb.	.15¾	- .17
SOAC (min. 10 dms.)	cwt.	—	- 8.00
Vulklor	lb.	.75	- .85

ANTI-COAGULANTS

Anhydrous Ammonia (l.c.l.)	lb.	.17	- .21
Aqua Ammonia (dms.)	lb.	.031	- .035
M.B.M. (l.c.l.)	lb.	—	- .35

ANTI-FOAMING AGENTS

Aero Anti Foam H	lb.	—	- .20
Regular	lb.	—	- .12
D.C. Antifoam A	lb.	5.65	- 6.65
Antifoam A Emulsion	lb.	2.30	- 4.00
Defoamer A-25	lb.	—	- 3.00
Deltyl Prime	lb.	.70	- .82
Defoamer 630	lb.	—	- 1.25½
Kessco X-3 (dms.)	lb.	—	- .47¾
Modicol A	lb.	.12	- .15
B	lb.	.35	- .40
RS-968	lb.	.38	- .38½
Terpinol Prime No. 1	lb.	.39	- .54

ANTI-OXIDANTS

Agehest 1293-22A	lb.	1.90	- 2.00
Agerite Alba	lb.	2.20	- 2.30
Gel	lb.	.60	- .62
Hipar	lb.	.91	- .93
H. P.	lb.	.67	- .69
Powder	lb.	.49	- .51
Resin	lb.	.65	- .67
Resin D	lb.	.49	- .51
Stalite	lb.	.49	- .51
White	lb.	1.40	- 1.50
Akroflex C	lb.	.67	- .69
F	lb.	.67	- .69
Aminox	lb.	.49	- .51
Antioxidant 2246	lb.	1.60	- 1.63
Antox	lb.	.49	- .51
Aranox	lb.	—	- 3.25
Benzoquinone	lb.	1.50	- 1.75
Betanox Special	lb.	.70	- .72
B-L-E	lb.	.49	- .51
Carvacrol	lb.	—	- .78
Deenax	lb.	.95	- 1.05
Di-tert-Butyl-para-Cresol	lb.	.91	- .95
Eugenol C.95%	lb.	3.34	- 3.54
Flectol H	lb.	.49	- .56
Flexamine	lb.	.67	- .69
Neozone A	lb.	.51	- .53
C	lb.	—	- .67
D	lb.	.49	- .51

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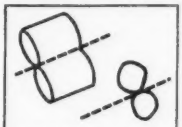

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REASON THREE

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ANTI-OXIDANTS (Cont'd)

Oxidex	lb.	—	3.60
PDA-10 and 20	lb.	.39	.41
Permalux	lb.	—	2.10
Resorcin, Tech. (dlvd.)	lb.	.82½	.83½
Santoflex AW	lb.	.75	.82
B	lb.	.49	.56
BX	lb.	.60	.67
35	lb.	.67	.74
Santovar-A	lb.	1.50	1.57
O	lb.	1.30	1.37
Santowhite Crystals	lb.	1.55	1.62
Santowhite L	lb.	.49	.56
MK	lb.	1.25	1.32
S.C.R. (tons)	lb.	.32	.34
Sequestrene AA	lb.	—	1.00
NA2	lb.	—	.82
NA3	lb.	—	.80
Stabilite	lb.	.53	.55
Alba	lb.	.72	.77
L	lb.	.53	.55
White	lb.	.49	.51
Stabilizer No. 1	lb.	—	1.55
Stabilizer No. 9-A	lb.	.80	1.05
Sunolite	lb.	.20	.23
Tannic Acid, Tech.	lb.	.46	.48
Thermoflex A	lb.	.98	1.00
V-G-B	lb.	.65	.67
Wing-Stay S	lb.	.48	.49

ANTI-SCORCHING AGENTS

Armeen HT	lb.	.34	.42
Benzoic Acid—Tech.	lb.	—	.43
Good-rite Vultrol	lb.	.58	.60
Sodium Acetate 60-62% Crystals	lb.	—	.06

ANTISEPTICS AND GERMICIDES

Arquad S	lb.	.22	.25
Formaldehyde (dms.)	lb.	.066	.071
G-4 (bbls.)	lb.	1.04	1.19
G-11	lb.	2.60	2.75
Nuodex 100 S.S. (dlvd.)	lb.	—	1.10
Nuodex 100 W.D. (dlvd.)	lb.	—	1.25
Nuodex Zinc 8% (dms.) (dlvd.)	lb.	.24	.28
Ortho Cresol (26°-27°)	lb.	—	.201
Retarder D	lb.	.42	.50
Soligen Drier—Copper 8% (dms.)	lb.	.231½	.24¼
Copper 6% (dms.)	lb.	.184¼	.19¼
Zinc 8% (dms.)	lb.	.221¼	.23½
Zinc 8% (dms.)	lb.	—	.21¼
Vancide	lb.	—	.80

ANTI-WEBBING AGENTS (for Latex)

Webnix 34	lb.	1.50	2.25

AROMATICS (DEODORANTS)

Alamasks	lb.	.50	6.50
Bouquet 149	lb.	—	3.00
Coumarin	lb.	—	2.75
Curodex 19	lb.	—	4.75
188	lb.	—	5.75
198	lb.	—	6.75
Deodorant 65	lb.	—	1.85
Deodorant L-37	lb.	2.00	2.40
L-44	lb.	2.50	2.90
N.L.T.X.	lb.	1.85	2.15
Deodorant Oil GD 3427	lb.	1.70	2.00
GD 6422	lb.	2.00	2.50
GD 6423	lb.	1.60	1.90
GD 6575	lb.	2.45	2.95
GD 31063	lb.	2.65	3.15
Latex Perfume 5	lb.	—	3.25
6	lb.	—	7.50
9	lb.	—	.65
Naugaromes (dms.)	lb.	1.50	3.00
Neutroleum Delta	lb.	—	2.60
Gamma	lb.	—	3.60
Parador A	lb.	1.95	2.25
C	lb.	2.[illegible]	[illegible]
E	lb.	.25	[illegible]
GD 5280	lb.	2.00	2.50
GD 5348	lb.	1.90	2.25
Perfume Oil Bouquet			
Vanilla M		2.40	2.75
Rodo No. 0	lb.	4.00	4.50
No. 10	lb.	5.00	5.50
Rubbarome (dms.)	lb.	90	3.80
Rubber Perfume [illegible]	lb.	—	2.45
Russian Leather [illegible]	lb.	—	4.35
Vanillin	lb.	3.00	4.05

BLOWING AGENTS

Ammonium Bicarbonate (dlvd.)	lb.	.0725	.1075
Blowing Agent CP-975	lb.	—	.35
Sodium Bicarbonate, U.S.P. (c.l. bags)	cwt.	—	2.10
Sponge Paste	lb.	—	.20
Unicel	lb.	—	.82
ND	lb.	—	1.40
S	lb.	—	.20
Urea	lb.	.0425	.0475

BONDING AGENTS

Braze	gal.	6.00	7.50
Durez 12987	lb.	.48	.53
MDI	lb.	5.00	5.50
50	lb.	2.75	3.25
Pentaerolite B1A	lb.	—	.88
Pliobond 20	gal.	2.91	3.23
30	gal.	3.63	4.07

BONDING AGENTS (Cont'd)

Reanite	gal.	6.75	7.25
Rex Compounds	gal.	1.30	2.85
Ty-Ply Q (BN & S)	gal.	6.75	8.00

COAGULANTS

Acetic Acid—56% (bbls.)	cwt.	9.00	11.00
Glacial—99½% (bbls.)	cwt.	14.05	14.55
Calcium Nitrate, Tech., Crystals	lb.	.07	.17
Hydroxyacetic Acid—70% (dms.)	lb.	—	.084
Zinc Nitrate, Tech.	lb.	—	.22½

COLORING AGENTS

Black

Aquablak B (also M, R)	lb.	.08	.11¾
Aquablak S	lb.	.11	.11½
Black Shield 4-35 (dms.)	lb.	—	.0825
Carbon Black—See *Reinforcing Agents*			
Lampblack No. 10	lb.	.06	.09
Mapico Black Iron Oxide (50 lb. bags)	lb.	.113¼	.12
Pure Black Iron Oxide	cwt.	11.75	12.00

Blue

Blue GD, Dispersed	lb.	—	4.55
Blue GD Paste	lb.	—	1.80
Milori Blue	lb.	.45	.48
Monastral Fast Blue CPL	lb.	—	1.77
PCD, Dispersed	lb.	—	2.50
Ramapo Blue	lb.	3.40	3.45
Rubber Blue X-1999	lb.	—	1.70
Stan-Tone Blue	lb.	1.40	4.00
Ultramarine	lb.	.14	.30
Vansul Blue M.B.	lb.	.90	2.65
Victoria Blue BP 262-D	lb.	2.25	2.30

Brown

Brown Iron Oxide	lb.	.113¼	.12
Mapico Brown (50 lb. bags)	lb.	.123¼	.13

Green

Filo Green	lb.	—	.32
Green Chromium Oxide, Pure	lb.	.37½	.44½
Green Chromium Oxide, Pure, Hydrated	lb.	.95	1.05
Green FD, Dispersed	lb.	—	1.85
Monastral Fast Green GSD, Dispersed	lb.	—	3.20
GSL	lb.	—	1.97
Permansa Green CP-594	lb.	—	1.35
Pigment Green B	lb.	—	1.35
GL-652D	lb.	.88	.93
Ramapo Green	lb.	—	4.00
Rubber Green X-1292	lb.	—	1.15
Stan-Tone Green	lb.	1.50	3.30
Vansul Green M.B.	lb.	1.05	3.05

Maroon

Stan-Tone Maroon	lb.	3.00	3.05
Vansul Maroon M.B.	lb.	1.05	2.80

Orange

Molybdate Orange	lb.	—	.41¾
Orange FD, Dispersed	lb.	—	2.75
Rubber Orange X-2065	lb.	—	3.00
Stan-Tone Orange	lb.	1.65	4.00
Vansul Orange M.B.	lb.	2.25	2.60

Red

Antimony Trisulfide	lb.	.72	.78
R. M. P. Sulfur Free	lb.	—	.78
R. M. P. No. 3	lb.	—	.72
Cadmium Red	lb.	.95	1.25
Cadmolith Red (bbls.)	lb.	1.75	2.00
Graphic Red (dlvd.)	lb.	—	.85
Indian Red, American, Pure	lb.	.121¼	.121½
Doxco (English)	lb.	.111½	.111¾
Mapico Reds (50 lb. bags)	lb.	.1225	.1250
Oximony Iron Oxide	lb.	—	.09
Red Iron Oxide, Light	lb.	.121¼	.121½
Red PRD, Dispersed	lb.	—	1.75
2RD, Dispersed	lb.	—	1.80
2BL	lb.	—	1.32
PRL	lb.	—	1.65
Rubanox Red CP-762 (dlvd.)	lb.	—	1.40
Rubber Red CP-339 (dlvd.)	lb.	—	1.10
Rubber Red RT-364	lb.	—	.75
Rubber Red RT-425	lb.	—	.75
Rubber Red X-1148	lb.	—	.85
Rubbered	lb.	.1150	.1175
Solfast Red	lb.	1.40	1.95
Stan-Tone Red	lb.	1.10	3.05
Sun Burnt Red	lb.	.1150	.1175
Vansul Red M.B.	lb.	.95	3.40
Watchung Red	lb.	—	1.95

White—Lithopone

Albalith	lb.	.0790	.0890
Cryptone BT	lb.	.10	.11
Eagle	lb.	.06¼	.06½
Pigmolith	lb.	.0790	.0890
Ponolith	lb.	.0790	.0865
Sunolith	lb.	.0790	.0865

COLORING AGENTS (Cont'd)

White—Titanium Pigments

Ti-Cal	lb.	.08	.08¾
Ti-Pure	lb.	.21	.24
Titanox A—all grades (dlvd.)	lb.	.21	.22
RA (dlvd.)	lb.	.23	.24
RA-10 (dlvd.)	lb.	.23	.24
RA-NC (dlvd.)	lb.	.23	.24
RC (dlvd.)	lb.	.08¾	.08¾
RC-HT (dlvd.)	lb.	.08	.08½
Unitane O-220	lb.	.195	.205
OR-250	lb.	.215	.225
Zopaque	lb.	.21	.22

White—Zinc Oxide (American Process)

AZO-ZZZ 11 (and 22, 33, 44, 55)	lb.	.1760	.1860
Eagle	lb.	.1760	.1860
Horse Head Special	lb.	.1760	.1860
XX Red	lb.	.1760	.1860
XX-505	lb.	.1910	.2010
Protox 166	lb.	.1760	.1860
167	lb.	.1760	.1860
St. Joe Black Label	lb.	.1760	.1860
Green Label	lb.	.1760	.1860
Red Label	lb.	.1760	.1860

White—Zinc Oxide (Dispersed)

Dispersed Zinc Oxide	lb.	—	1.5

White—Zinc Oxide (French Process)

AZO-ZZZ 66	lb.	.1935	.2085
Eagle Green Seal	lb.	.1935	.2035
Eagle Red Seal	lb.	.1885	.1985
Eagle White Seal	lb.	.1985	.2085
Florence Green Seal	lb.	.1935	.2035
Red Seal	lb.	.1885	.1985
White Seal	lb.	.1985	.2085
Kadox 25	lb.	.1985	.2085
Kadox 15, 17 and 72	lb.	.1760	.1860
U. S. P. 12	lb.	.2085	.2185

White—Zinc Sulfide

Cryptone ZS-800	lb.	.2530	.2630

Yellow

Benzidine Yellow	lb.	1.91	2.15
Cadmolith Yellow (bbls.)	lb.	—	1.27
Chrome Yellow	lb.	—	.29¼
Iron Oxide, Pure	lb.	.10	.10¼
Mapico Yellow (50 lb. bags)	lb.	.1000	.1025
Rubber Yellow X-1940	lb.	—	2.15
Stan-Tone Yellow	lb.	1.00	2.25
Toluidine Yellow	lb.	—	1.91
YL-556-D	lb.	—	.82
Oximony Iron Oxide	lb.	—	.06¾
Vansul Yellow M.B.	lb.	1.05	1.85
Yellow GD, Dispersed	lb.	—	2.15
GL	lb.	—	1.62
Zinc Yellow	lb.	—	.22½

DISPERSING AGENTS

Anchoid*	lb.	.24	.25
Armeen 18	lb.	.42	.50
Blancol Conc. Powder	lb.	.15½	.17½
Darvan No. 1 (and No. 2)	lb.	.22	.30
Daxad 11 (21, 23)	lb.	.08	.35
Dispersaid	lb.	1.25	1.35
Furala	lb.	.06½	.07½
Halloid	lb.	.04½	.05½
Lomar PW	lb.	—	.16
Marasperse C	lb.	.06½	.06¾
CB	lb.	.12¼	.13¼
N	lb.	.09½	.10½
Modicol C	lb.	.08	.12
Rubbex	lb.	.267	.285
Stan-Chem BQC	lb.	.12¼	.17¼
1067	lb.	—	.13½
1471	lb.	.1687	.2187
2251	lb.	.12¼	.17¼
Trenamine D-25	lb.	.32½	.36
Triethanolamine (drums) (dlvd.)	lb.	.24½	.27½
Yelkin TT	lb.	.14	.18
Zinsper	lb.	—	.15

EXTENDERS

Advagum 1098	lb.	—	.64
Arco 1071-13B	lb.	.14½	.15½
1073-18B	lb.	.13½	.14½
1294-36B	lb.	.11½	.12½
Bunaweld Polymer No. 780	lb.	—	.22
No. 5514	lb.	—	.35
D-92 (and D-93) (dms.)	lb.	—	.12
Extender 600	lb.	—	.1480
Polyco 418	lb.	.17	.18
PR-162 Latex Extender	gal.	—	1.55
Synprolac	lb.	.16	.23
Synprowax	lb.	—	.23
Vistanex	lb.	—	.32

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low manganese types in a variety of finenesses.

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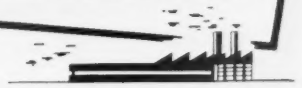

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Abrasives			
Carbonite	lb.	.19½	- 1.30
Lionite	lb.	.14	- 1.20
Pumice	lb.	.03	- .05
Aluminum Hydrate	lb.	.07	- .10
Aluminum Silicate			
Marter White	ton	18.50	- 30.00
Barium Carbonate (l.c.l.)	ton	72.50	- 90.00
Barytes			
No. 1 Floated, White	ton	37.85	- 53.60
No. 2 Floated, Unbleached	ton	35.85	- 51.60
No. 22 Barytes (c.l.)	ton	——	- 20.00
Foam A	ton	——	- 37.60
Bentonite (c.l.)	ton	——	- 12.50
Argosite Clay (c.l.)	ton	——	- 12.50
Bennett Clay (c.l.)	ton	——	- 32.50
SPV Volclay (c.l.)	ton	——	- 12.50
Blanc Fixe	ton	72.50	-120.00
Calcium Carbonate			
Atomite (c.l.)	ton	——	- 30.00
B.I. White No. 1 (c.l.)	ton	——	- 7.50
B.I. White No. 2 (c.l.)	ton	——	- 7.00
Blue Star XX	ton	——	- 15.50
Calcene TM	ton	75.00	- 95.00
Caltec	ton	40.00	- 57.50
Calwhite	ton	——	- 17.00
Camelwite	ton	——	- 30.00
Gamaco	ton	——	- 30.00
Kalite (c.l.)	ton	——	- 50.00
Laminar	ton	——	- 30.00
Lesamite (c.l.)	ton	——	- 27.50
Millical (c.l.)	ton	——	- 32.50
Multifex	ton	——	-120.00
M	ton	——	-110.00
Non-Fer-Al	ton	——	- 25.00
Purecal D	ton	51.75	- 66.75
M	ton	46.50	- 66.75
T	ton	110.00	-125.00
U	ton	120.00	-135.00
Sierracal	ton	15.00	- 18.50
Super Multifex	ton	——	-160.00
Surfex (c.l.)	ton	——	- 35.00
Suspenso (c.l.)	ton	——	- 30.00
Witcarb B	ton	51.75	- 66.75
P	ton	110.00	-125.00
R	ton	120.00	-135.00
R-12	ton	46.50	- 66.75
York White	ton	——	- 9.50
Calcium Silicate			
Silene EF	ton	120.00	-140.00
Calcium Sulfate, Anhydrous			
Snow White Filler	ton	——	- 20.50
Calcium Sulfate, Hydrous			
Terra Alba No. 1	ton	12.00	- 14.40
Chalk Whiting (l.c.l.)	lb.	.0150	- .0175
Recco Paris Whiting	ton	——	- 33.00
Clay			
Alsilite (c.l.)	ton	20.00	- 45.00
Alsite (c.l.)	ton	——	- 14.00
Aluminum Flake	ton	17.00	- 60.00
A.S.P. No. 1 (c.l.)	ton	——	- 35.00
No. 11 (c.l.)	ton	——	- 40.00
Buca (c.l.)	ton	——	- 45.00
Burgess No. 20	ton	——	- 35.00
No. 30	ton	——	- 37.00
Burgess Iceberg	ton	——	- 50.00
Burgess Polyclay	ton	——	- 45.00
Catalpo (c.l.)	ton	——	- 35.00
Champion	ton	——	- 14.00
C.S.D. (c.l.)	ton	——	- 13.50
Crown	ton	——	- 14.00
Dixie (c.l.)	ton	——	- 14.00
Hi-White R	ton	——	- 13.50
Hydratex R	ton	——	- 30.00
Kaolloid Clay (c.l.)	ton	——	- 10.50
Markham (c.l.)	ton	14.00	- 35.00
McNamee (c.l.)	ton	——	- 13.50
Oldham (c.l.)	ton	13.50	- 35.00
Paragon	ton	——	- 13.50
Pigment 5	ton	21.85	- 36.00
Pigment 22	ton	17.00	- 22.50
Pigment 33	ton	——	- 37.00
Recco (c.l.)	ton	——	- 14.00
RX-43	ton	——	- 33.00
Stan-Clay	ton	25.00	- 30.00
Stellar-R	ton	——	- 50.00
Suprex	ton	——	- 14.00
Whitetex (c.l.)	ton	——	- 50.00
Diatomaceous Earth	ton	30.00	- 50.00
Kaylorite (c.l.)	ton	——	- 30.00
Lorite	ton	——	- 30.00
Flock			
Cotton, white and colored	lb.	.13	- .33
Filfloc F 40-9000	lb.	——	- .16
Filfloc F 6000	lb.	——	- .40
Polycel	ton	110.00	-210.00
Rayon, bleached or dyed	lb.	.87	- 1.50
Rayon, grey	lb.	——	- .18
Rayon, pink	lb.	——	- .18
Solka-Floc (l.c.l.)	lb.	.07	- .16
Wool, bleached or dyed	lb.	.70	- 1.00
Glue, Bone (dlvd.)	lb.	.18	- .20½
Leather, Shredded	lb.	.05	- .17
Lignin	lb.	.03	- .06
Inulin	lb.	.09	- .10
Limestone, Pulverized	ton	3.25	- 10.00
Georgia Marble No. 10	ton	——	- 10.00
Industrial Filler No. 100	ton	——	- 5.75
Micro Velva	ton	45.00	- 48.00
Velvet Filler, Superfine	ton	——	- 27.00
Magnesium Carbonate	lb.	.0950	- .1050
K & M Clearcarb	lb.	.1225	- .1275
Magnesium Oxide	lb.	.05	- .06

FILLERS (Cont'd)

Magnesium Silicate	ton	18.00	- 35.00
Airex	ton	25.00	- 27.00
Asbestol	ton	——	- 25.00
Blue Star Talc	ton	——	- 23.00
L.S. Silver	ton	23.50	- 25.50
Sierra White	ton	21.25	- 23.25
Mica	lb.	.01¼	- .07¾
Concord	lb.	.07	- .07¾
Micro-Mica	lb.	.06¾	- .07½
Mineralite (c.l.)	ton	25.00	- 85.00
Silversheen	lb.	.07¼	- .08
Triple A Mica (c.l.)	ton	——	- 25.00
Vermiculite	lb.	——	- .11
Wet Ground Biotite Mica	lb.	.05½	- .06¼
Wet Ground Mica No. 160	lb.	.07	- .07¾
Pyrophyllite			
Pyrax A (c.l.)	ton	——	- 13.50
WA (c.l.)	ton	——	- 16.00
Silica	ton	16.00	- 27.00
Blue Star	ton	——	- 20.60
Slate, Powdered (l.c.l.)	ton	15.00	- 20.00
Talc, Domestic	ton	10.00	- 27.00
Nytal 200	ton	——	- 25.00
300	ton	——	- 36.00
Walnut Shell Flour	ton	45.00	-111.00
Whiting, Commercial	ton	——	- 7.00
Camel-Carb	ton	——	- 10.00
C-C-O White	ton	——	- 18.00
Georgia Marble No. 15	ton	——	- 15.00
No. 16	ton	——	- 16.00
Keystone (c.l.)	ton	——	- 16.00
Rambo No. 1 White	ton	——	- 8.50
No. 6 White	ton	——	- 9.00
Snowflake (c.l.)	ton	——	- 18.00
Veroc (c.l.)	ton	——	- 8.50
Welco (c.l.)	ton	——	- 8.50
York White R (c.l.)	ton	——	- 8.50
Wood Flour	ton	22.00	- 49.00

FINISHING MATERIALS, SURFACE

Beaco Finishes	gal.	2.10	- 2.35
Black Out	gal.	4.50	- 8.00
Shellac, Orange Gum	lb.	.40	- .45
VanWax	gal.	1.45	- 1.50

FLAME RETARDANTS

Celluflux	lb.	.36½	- .38½
Chlorinated Paraffin 42	lb.	——	- .14¾
Chlorowax 70	lb.	.18	- .19
Halowax	lb.	.27	- .42
Zinc Borate 3167	lb.	.1920	- .2020
Zytax	lb.	.49	- .78

LUBRICANTS, MOLD

Aquadag	lb.	3.50	- 4.00
Aquarex D	lb.	——	- .80
L	lb.	——	- .94
MDL	lb.	——	- .33
WAQ	lb.	——	- .28
Akra Gel	lb.	——	- .165
Borax, Granular (l.c.l.)	ton	81.00	- 86.00
Carbowax 4000	lb.	.33	- .34
Colite Concentrate (dms.)	gal.	——	- .90
Concentrex	lb.	——	- .25
D.C. 7 Compound	lb.	5.25	- 6.50
D.C. Emulsion No. 7	lb.	1.90	- 2.32
No. 35	lb.	1.59	- 3.50
No. 35A	lb.	1.59	- 3.50
No. 35B	lb.	1.59	- 3.50
D.C. Mold Release Fluid	lb.	3.70	- 6.00
Dipex	lb.	.14	- .18
Dri-Lube	lb.	——	- .22
Glydag	lb.	1.30	- 2.00
Hawkeye Flake (dlvd.)	lb.	——	- .11
Kokobace	lb.	——	- .12
Lubrex	lb.	.25	- .30
Lubri-Flo	gal.	10.00	- 12.00
Migralube	lb.	——	- .35
Mold Lubricant No. 72 Conc.	gal.	2.50	- 4.00
No. 735	gal.	1.26	- 2.75
No. 769	gal.	1.20	- 2.60
Moldeze No. 3	gal.	5.00	- 6.00
Mold-Brite	gal.	——	- 1.50
Mold Slick	lb.	.253	- .271
Mold-White	gal.	——	- 2.00
Monopole Oil MD	lb.	——	- .23
Nopcolube	lb.	——	- .15
Orvus WA Paste (dms.)	lb.	——	- .26
Prodag	lb.	.28	- .42
Purity Flake (dlvd.)	lb.	——	- .13
Rubber-Flo	gal.	1.25	- 1.60
Rubber-Glo	gal.	——	- .94
Rusco Mold Paste	lb.	——	- .25
Sericite (l.c.l.)	ton	65.00	- 75.00
Thermalube	lb.	——	- .13¾
Ucon Lubricants	lb.	.28	- .37
Ulco Mold Soap	lb.	.12	- .23

LUBRICANTS, RUBBER

Diglycol Stearate Neutral (and SE) (dms.)	lb.	——	- .25
Extrud-o-Lube	gal.	——	- 1.84
G.B. Naphthenic Neutrals	gal.	.11	- .18
Latex-Lube GR (dlvd.)	lb.	.19¼	- .20
Pigmented (dlvd.)	lb.	.18¼	- .19¼
RS	lb.	——	- .16½
Liqui-Lube (dlvd.)	lb.	——	- .16¾
NF (dlvd.)	lb.	——	- .16¾
NT (dlvd.)	lb.	——	- .16¾
Propylene Stearate (dms.)	lb.	.68	- .78

LUBRICANTS, RUBBER SURFACE

Barium Stearate	lb.	.37	- .39
Calcium Stearate	lb.	.35	- .37
D.C. 4 Compound	lb.	5.13	- 6.50
D.C. 200 Fluid	lb.	3.70	- 6.00
Glycerized Lubricant	gal.	——	- 1.48
Hydro-Zinc	lb.	——	- .20
Polyethylene Glycol	lb.	.26½	- .29
Rexanol	lb.	——	- .13
Separex	lb.	——	- .25
Stock-Lube	lb.	——	- .19
Slab-Dip	lb.	——	- .15
Wet-Zinc	gal.	——	- .22¼
Zinc Stearate	lb.	.37	- .39
Z.S.D. Dispersion	lb.	——	- .20

MOLD CLEANERS

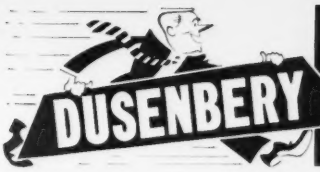
Actusol (dlvd.)	gal.	1.45	- 1.65
Alkon (dlvd.)	lb.	.16	- .16½
Metso 99	cwt.	4.00	- 5.85
Granular	cwt.	3.50	- 5.15
Rubber-Sol	gal.	2.97	- 3.97
Shelblast	ton	80.00	-140.00
Sprex A.C. (dlvd.)	lb.	.17¾	- .18¼

PEPTIZING AGENTS

Peptizer P-12	lb.	.84	- 1.00
Pepton 22	lb.	.72	- .75
RPA 2	lb.	——	- .75
3	lb.	——	- .46
3-RO	lb.	——	- .49
5	lb.	——	- .57

PLASTICIZERS & SOFTENERS

AA (dms.)	lb.	.30	- .30½
Acto 500	lb.	——	- .09
Adipol BCA (dms.)	lb.	.45½	- .46
2EH	lb.	.47½	- .48½
10A	lb.	.47½	- .48½
ODY	lb.	.51¾	- .52¾
American Pine Tar	lb.	.0410	- .0678
Arneel	lb.	.22	- .27
Arolene 1980 (c.l.)	lb.	——	- .10
Aromatic Tar	gal.	.0573	- .1973
Bardol	lb.	.02½	- .03½
B	lb.	.05¾	- .06
Bayol D	gal.	——	- .382
F	gal.	——	- .52
Beeswax, Bleached	lb.	.85	- .90
Yellow Refined	lb.	.70	- .75
Bondogen	lb.	.55	- .60
B.R.C. No. 20	lb.	.0150	- .0160
B.R.H. 2	lb.	.0280	- .0290
BRS 700	lb.	.0175	- .0260
B.R.T. 3	lb.	.024	- .025
4	lb.	.0225	- .0235
7	lb.	.0265	- .0275
B.R.V.	lb.	.0350	- .0515
Bunarex Resins	lb.	.06½	- .07½
Bunatak AH	lb.	.08	- .09
U	lb.	——	- .17½
No. 90	lb.	——	- .09
No. 210	lb.	——	- .14
Burgundy Pitch	lb.	.0843	- .0888
Butac	lb.	.10½	- .11½
Butoxyethyl Diglycol Carbonate	lb.	.40	- .41
Butyl Benzyl Sebacate	lb.	.61	- .63¾
Butyl Carbitol Perlargonate (dms.)	lb.	——	- .643
Butyl Cellosolve Perlargonate (dms.)	lb.	——	- .68
Butyl Palmitate	lb.	——	- .26½
Butyl Roleate	lb.	.176	- .18
Butyl Stearate-CP (dms.)	lb.	.31	- .32
BWH-1	lb.	——	- .14
Cabflex Di-BA (dms.)	lb.	.42	- .44¼
Di-OA (dms.)	lb.	.43½	- .46¼
Di-OP (dms.)	lb.	.40	- .42¼
Califlux 510, 550	lb.	.025	- .0325
G.P.	lb.	.0125	- .02
R-100	lb.	.04½	- .05¼
TT	lb.	.02	- .02¾
Candelilla Wax Prime	lb.	.67	- .75
Capryl Benzyl Sebacate	lb.	.67½	- .70¾
Carbonex	lb.	.0325	- .0375
S Flakes	lb.	.04	- .0475
S Plastic	lb.	.0410	- .0460
644	lb.	.0375	- .0425
Carbowax 4000 (drums)	lb.	.33	- .34
Cardolite 615	lb.	.33¼	- .36¾
816	lb.	.25¼	- .28¾
Carnauba Wax, Crude	lb.	.95	- 1.10
Refined	lb.	.87	- .94
Substitute	lb.	.45	- 1.08
Yellow	lb.	1.15	- 1.20
Celluflex (dms.)	lb.	.34	- .35
Ceresine Wax	lb.	1.4	- .26
Chlorowax 40	lb.	.16	- .17
Contogum	lb.	.06¾	- .10¼
CTLA Polymer	gal.	.17½	- .32½
Cumar Resins	lb.	.05½	- .14½
D.C. 200 Fluid	lb.	4.14	- 6.00
D.B.M.	lb.	——	- .30
Degras, Common	lb.	——	- .12
Dibenzyl Sebacate	lb.	.74	- .76¾
Dibutoxethyl Sebacate	lb.	——	- .563¾
Dibutyl Phthalate	lb.	.36	- .41¾
Dibutyl Sebacate—Tech.	lb.	.59	- .61¾
C.P.	lb.	.61	- .63¾
Dicapryl Adipate	lb.	.40½	- .43¾



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PLASTICIZERS & SOFTENERS (Cont'd)

Dicapryl Phthalate	lb.	.37	- .39¼
Dicapryl Sebacate	lb.	.61½	- .64¼
Di-Carbitol Phthalate (dms.)	lb.	.42	- .42½
Dicyclohexyl Phthalate	lb.	—	- .42
Diethyl Phthalate (t.c.)	lb.	.29½	- .32¼
Di-2-ethlyhexyl Phthalate (t.c.)		—	- .37
Dihexyl Adipate	lb.	.33	- .35¾
Dihexyl Phthalate	lb.	.28½	- .31¾
Dihexyl Sebacate	lb.	.50	- .52¾
Di Isobutyl Azelate (dms.)	lb.	.54	- .57
Di-iso-octyl Adipate (dms.)	lb.	.40½	- .43¼
Di-iso-octyl Phthalate (t.c.)	lb.	.37	- .39¾
Dimethyl Phthalate (t.c.)	lb.	.29¾	- .30¾
Dimethyl Sebacate	lb.	.77	- .79¾
Dinopol	lb.	.42¼	- .43¾
Dioctyl Phthalate (dms.)	lb.	.41¾	- .42¼
Dioctyl Sebacate (dms.)	lb.	.62½	- .65¾
D.I.O.P. (dms.)	lb.	.41¾	- .42¼
Dipolymer Oil	gal.	—	- .—
Dispersing Oil No. 10	lb.	.05¼	- .05¾
Dutrex B	lb.	.02¾	- .03¾
5 and 6	lb.	.020	- .031
15E	gal.	.10	- .20
20, 21, 22 and 25	lb.	—	- .04
Elastex 10-P	lb.	.40	- .42½
50-B	lb.	.34½	- .37
DCHP	lb.	.42½	- .43½
Estac	lb.	—	- .16
Ethox (dms.)	lb.	.45¼	- .45¾
Flexol B-400	lb.	.28	- .30
DHP	lb.	.46	- .48¾
DOP	lb.	.40	- .42¾
TOF	lb.	.49	- .51¾
4GH	lb.	.44	- .46
5GO	lb.	.53	- .55
4GO	lb.	.37	- .39¾
8HP	lb.	.40	- .42¾
Flexricin P-1 (and 4)	lb.	.40	- .41¾
P-4C	lb.		- .37¾
P-8	lb.		- .41¾
Pale 4	lb.	.35¾	- .37¾
Galex W-100	lb.	.15½	- .19¾
G. B. Light Process Oil	lb.	.025	- .0325
Medium Process Oil	lb.	.031½	- .04¾
G. B. Naphthenic Neutrals	gal.	.11	- .18
Good-Rite GP233	lb.	.45¾	- .48½
GP261	lb.	.40	- .42¾
Hardlex 500 (dms.)	lb.	.36½	- .39¼
Hercolyn (dhyd.)	lb.	.20	- .20½
Herron-H.T.	gal.	.16	- .27
Herron-Plas	lb.	—	- .03¾
Herron-Wax	lb.	.05¼	- .06
No. 23	lb.	.08¼	- .08¾
No. 24	lb.	.07¼	- .07¾
HSC No. 13	lb.	.27	- .30
Hylene B	lb.	.45	- .50
C	lb.	.41	- .46
D	lb.	.47½	- .52½
Indonex 632½ (633½, 634½, 638¼)	gal.	.1100	- .1700
Kapsol	lb.	.34	- .35
Kenflex	lb.	.19	- .27
Kessoflex 101 (dms.)	lb.	—	- .39
102 (dms.)	lb.		- .32½
103 (dms.)	lb.		- .41¾
104 (dms.)	lb.		- .18
105 (dms.)	lb.		- .33½
106 (dms.)	lb.		- .35½
KP 23 (dms.)	lb.	.31	- .32
120 (dms.)	lb.	.31	- .32
140 (dms.)	lb.	.4774	- .4825
203 (dms.)	lb.	.34¾	- .35¼
504	lb.	.35¾	- .36¼
555	lb.	.33	- .33½
Kremol 40	gal.	.36	- .46
Kremol 40	lb.	.39	- .49
50	gal.	.39	- .49
Kronisol (drums)	lb.	.38¼	- .39½
Kronitex (drums)	lb.	.37¼	- .38¼
Lanolin, Tech. Anydrous	lb.	.21	- .23
Lead Oleate	lb.	—	- .30½
Lindol (dms.)	lb.	.34	- .35
2-Mercaptoethanol (drums)	lb.	1.25	- 1.50
Methox (dms.)	lb.	.41¾	- .41¾
Methyl Laurate	lb.	.25	- .27
Methyl Oleate	lb.	—	- .20
Methyl Stearate (dms.)	lb.	—	- .30
Mistrol G	lb.		- .23
R	lb.	—	- .17
Montan Wax, Crude	lb.	.15	- .18
Monten Wax	lb.	.12	- .13
Morty Wax	lb.	—	- .30½
Morflex No. 100	lb.	.37	- .38¾
Natac	lb.	.10	- .11
Nebony Resins (dms.)	lb.	.04	- .04
Neolene 210 (t.c.)	lb.	—	- .16
212 (t.c.)	lb.	—	- .14
220 (t.c.)	lb.	—	- .15
Nerium	lb.	—	- .09
Nevillac Resins (dms.)	lb.	.28	- .55
Neville Resins (dms.)	lb.	.12	- .18
Nevindene Resins (dms.)	lb.	.15	- .18
Nevinol (dms.)	lb.		- .20
Nevoil	lb.	.02½	- .03½
Nevtex 10 (dms.)	lb.	.11	- .12½
Nuba 1 (and 2) (dms.)	lb.	.05¾	- .06¼
3X (dms.)	lb.	.07¾	- .08¼
15 (and 30) Oil (dms.)	lb.	.36¼	- .38
No. 480 Oil Proof Resin	lb.		- .—
Ohagex Q10 (dms.)	lb.	.40¾	- .41¾
Opalwax	lb.	.37	- .38
Ortho-Nitrobiphenyl	lb.	.06	- .11
Ozokerite Wax No. 64 White	lb.	.31	- .32
Yellow	lb.	.25	- .26

PLASTICIZERS & SOFTENERS (Cont'd)

Palm Oil	lb.	—	- .11
Paradene Resins (dms.)	lb.	.06½	- .07½
Para Flux (dms.)	gal.	.1925	- .2025
4016 (dms.)	gal.	.22	- .23
Para Lube (t.c.l.)	lb.	.046	- .048
Parmio	lb.	.06	- .13½
Pepton 22	lb.	.72	- .75
PG-16 (drums)	lb.	—	- .22¼
Picco 10 (and 25)	lb.	—	- .13½
75 (and 100)	lb.	—	- .13
Rubber Resin 100	lb.	.1855	- .1905
S.O.S.	gal.	—	- .29
Piccocizer 30	lb.	—	- .05¼
Piccolastic A (and B, C, D, E)	lb.	.28½	- .29
FI, FHF and FX	lb.	—	- .1815
T-135	lb.	.22¾	- .23¼
Piccolyte S Resins	lb.	.18½	- .20
Piccolyte WW Resins	lb.	.45	- .47
Piccumaron Resins	lb.	.06¼	- .17
Piccovar	lb.	.14½	- .15
Piccovol	lb.	—	- .02½
Pictar	gal.	—	- .25
Pigmentar	lb.	.0410	- .0678
Pigmentarol	lb.	.0410	- .0678
Plastac M	lb.	—	- .09¼
Plasticizer 2286	lb.	—	- .26¼
Plasticizer SC	lb.	.49	- .52
Plasticizer W-13	lb.	.37	- .38¾
Plasticizer XP-3	lb.	—	- .50
Plastoflex 50	lb.	.34	- .38
55	lb.	.34	- .38
520	lb.	.37½	- .38½
VS	lb.	.40	- .43
Plastogen	lb.	.07¾	- .08
Plastolein 9050 (c.l.)	lb.	.59¼	- .62¼
9055	lb.	.37½	- .40½
9058	lb.	.57	- .60
9250	lb.	.27	- .30
9715	lb.	.37½	- .40½
Plastone	lb.	.27	- .30
Polycin 781	lb.	.40	- .41
Polyco 438	lb.	.34	- .36
Polymel C-128	lb.	.19½	- .20¼
D	lb.	.22	- .24
H-2	lb.	.22	- .24
6	lb.	.06¾	- .10
7	gal.	.23	- .28
Process Oil C-255 (c.l.)	gal.	—	- .22
Propylene Stearate (dms.)	lb.	—	- .32
PT 400 Pine tar (600, 900) (t.c., dms.)	lb.	.0410	- .0534
PX-104	lb.	.34	- .42
PX-108	lb.	.38	- .46
PX-208	lb.	.41½	- .49
PX-404	lb.	.60	- .68
Reogen	lb.	.13¾	- .13½
465 Resin (dms.)	lb.	.07	- .07½
Resin 731-C	cwt.	—	- 15.00
Resin C	lb.	.0200	- .0285
Resinex	lb.	.03¼	- .03¾
L-4	lb.	.02¼	- .03
Rexflex	lb.	—	- .15
Rosin Oil	gal.	.54	- 1.20
R.P.A. No. 2	lb.	—	- .65
No. 3	lb.	—	- .46
No. 5	lb.	—	- .57
R.S.O. Softening Oil	lb.	.03	- .05
Rubberol	lb.		- .25¾
Rubtar	gal.	—	- .40
Santicizer B-16	lb.	.50	- .52
E-15	lb.	.47	- .49
M-17	lb.	.44	- .46
No. 107	lb.	.40	- .42½
No. 140	lb.	.29	- .31
No. 141	lb.	.40	- .42½
No. 160	lb.	.34	- .36
Sherolatum	lb.	.03½	- .06
Softener No. 20	gal.	.09	- .25
Staflex 1XA	lb.	.34	- .36
Stanolind Petrolatum	lb.	.048	- .086
Wax	lb.	.31	- .32¾
Staybelite Resin (dms.)	cwt.	—	- 12.00
Sunny South Burgundy Pitch	lb.	.0980	- .1025
Sunny South Pine Tar	lb.	.0410	- .0678
Sunny South Rosin Oil	gal.	.58	- .87½
Superla Wax	lb.	.27¾	- .32
Syncera Wax	lb.	.19	- .24
Syn Tac (c.l.)	gal.	—	- .33
Synthetic Revertant Oil	lb.	—	- .16
Tar, Refined	gal.	.12	- .17
K-Tarnel NR (t.c.)	lb.	—	- .0851
Terpene A	gal.	—	- .65
TP-90B	lb.	—	- .67
TP-95	lb.	—	- .65
TP-98	lb.	—	- .65
Triacetin	lb.	.34	- .45
Tricresyl Phosphate (t.c.)	lb.		- .35
Turgum S	lb.	.08¾	- .09¼
Vanadiset A	gal.	.13	- .20
Vistac No. 1	gal.	1.00	- 1.16
P	lb.	.18	- .18½
Vinpocelene 50	lb.	—	- .37
Witresin—Granular	ton	41.00	- 43.00
Solid	ton	36.00	- 38.00

PROCESSING AIDS

Castor Oil, Processed (dms.)	lb.	—	- .33½
Refined (drums)	lb.	—	- .19¼
Castorwax (min. 250 lbs.)	lb.	—	- .27¼
Dutrex 7	lb.	.12	- .20
ELA	lb.	—	- .80
Millrex	lb.	—	- .15

PROCESSING AIDS (Cont'd)

Resin No. 510	lb.	.13½	- .16½
Zyrox	lb.	.50	- .79

PROTECTIVE & STABILIZING AGENTS

Acacia	lb.	.12¾	- .21
Alpha Protein	lb.	.24	- .28
Ammonium Alginate	lb.	—	- .95
Aroostoocrat	lb.	—	- .07½
Carob Bean Flour	lb.	—	- .46
Casein	lb.	.28	- .38
Ethylene Diamine 68%	lb.	.47	- .50
Karaya Gum	lb.	.20	- .50
Prosein	lb.	.0600	- .0630
Rex Compound No. 2801	lb.	—	- .15
Stablex B	lb.	.50	- .95
X	lb.	.27	- .35

RECLAIMING AGENTS

Armeen C	lb.	.50	- .58
T	lb.	.42	- .50
No. 317 H.B. Oil	gal.	.11½	- .16½
535	gal.	.22	- .27
C-6 Oil (and 28, 32)	gal.	.33	- .38
C-10 Oil	gal.	.25	- .30
C-31 Oil	gal.	—	- .21¼
Caustic Soda—Flake 76% (c.l., drums)	cwt.	—	- 3.75
Liquid 50% (t.c.)	cwt.	—	- 2.55
Solid 76% (c.l., dms.)	cwt.	—	- 3.35
Cresylic Acid (99-100%)	gal.	1.20	- 1.39
D-4	gal.	—	- .27
E-5	gal.	—	- .25
G. B. Reclaiming Oil	gal.	.12	- .18
CD-10	gal.	.10	- .16
CD-50-U	gal.	.18	- .24
Gensol No. 6 (t.c.)	gal.	—	- .45
Heavy Aromatic Naphtha	gal.	—	- .12¼
LX-77 Reclaiming Solvent	gal.	.21	- .33
LX-572 Reclaiming Oil	gal.	.27	- .32
LX-777 Reclaiming Oil	gal.	.23	- .33
Neo-Fat D-242	lb.	.05½	- .07¾
PRR 1	gal.	.15	- .35
PT 67 Light pine oil	gal.	.50	- .60
PT 101 Pine tar oil	lb.	.0410	- .0534
Q Oil	gal.	—	- .286
Reclaiming Oil 1621	lb.	.03	- .04
Reclaiming Oil 3186 (t.c.)	gal.	.28	- .38½
Reclaiming Oil 3186-G	gal.	.25	- .36½
Reclaiming Reagent No. 4	lb.	.12	- .15
R.P.A. No. 3	lb.	—	- .46
RR-10		—	- .35
Soda Ash (c.l., bags)	cwt.	—	- 1.50
Solvenol 1 (dms.)		—	- .60
Solvent 534	gal.	.20½	- .26½
Solvent Oil 21	gal.	.24	- .29
C-42	gal.	.23	- .28
Union Solvent 4060-O	gal.	—	- .149
X-1 Resinous Oil	lb.	.0210	- .0275

REINFORCING AGENTS—CARBON BLACK

Channel, Hard Processing (HPC) (bags)

Atlantic HPC-98	lb.	.0740	- .1225
Continental F	lb.	.0740	- .1225
Croflex	lb.	.0740	- .1225
Dixiedensed (and S)	lb.	.0740	- .1225
Kosmobile (and S)	lb.	.0740	- .1225
Micronex HPC	lb.	.0740	- .1225
Spheron 4	lb.	.0740	- .1225
Witco Disperso No. 6	lb.	.0740	- .1225

Channel, Medium Processing (MPC) (bags)

Atlantic MPC-95	lb.	.0740	- .1225
Continental A	lb.	.0740	- .1225
Croflex TH	lb.	.0740	- .1225
Dixiedensed HM (and S-66)	lb.	.0740	- .1225
Huber Arrow TX	lb.	.0740	- .1225
Kosmobile HM (and S-66)	lb.	.0740	- .1225
Micronex Standard	lb.	.0740	- .1225
Spheron 6	lb.	.0740	- .1225
Texas M	lb.	.0740	- .1225
Witco Disperso No. 1	lb.	.0740	- .1225

Channel, Easy Processing (EPC) (bags)

Atlantic EPC E-42	lb.	.0740	- .1225
Continental AA	lb.	.0740	- .1225
Croflex 77	lb.	.0740	- .1225
Dixiedensed 77	lb.	.0740	- .1225
Kosmobile 77	lb.	.0740	- .1225
Micronex W-6	lb.	.0740	- .1225
Spheron 9	lb.	.0740	- .1225
Texas E	lb.	.0740	- .1225
Witco Disperso No. 12	lb.	.0740	- .1225
Wyex	lb.	.0740	- .1225

Channel, Conductive (CC) (bags)

Continental R-40	lb.	.1800	- .2400
Dixie 5 Dustless	lb.	.0950	- .1550
Dixie Voltex	lb.	.1950	- .2500
Kosmink Dustless	lb.	.0950	- .1550
Kosmos Voltex	lb.	.1950	- .2500
Spheron C	lb.	.1400	- .1850
Spheron N	lb.	.2500	- .3000
Voltex	lb.	.1950	- .2500

Conductive Furnace Black (CFB) (bags)

Shawinigan Acetylene Black	lb.	.1600	- .2200

Furnace, Fast Extruding (FEF) (bags)

Arovel	lb.	.0600	- .1000
Croflex 50	lb.	.0600	- .1000
Dixie 50	lb.	.0600	- .1000
Kosmos 50	lb.	.0600	- .1000
Statex M	lb.	.0600	- .1000
Sterling SO	lb.	.0600	- .1000

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REINFORCING AGENTS—CARBON BLACK (Cont'd)

Furnace, General Purpose (GPF) (bags)

Sterling V	lb.	.0500 -	.0900

Furnace, High Modulus (HMF) (bags)

Collocarb	lb.	.0550 -	.0950
Continex HMF	lb.	.0550 -	.0950
Croflex 40	lb.	.0550 -	.0950
Dixie 40	lb.	.0550 -	.0950
Kosmos 40	lb.	.0550 -	.0950
Modulex	lb.	.0550 -	.0950
Statex 93	lb.	.0550 -	.0950
Sterling L	lb.	.0550 -	.0950

Furnace, Medium Abrasion (MAF) (bags)

Philblack A	lb.	.0600 -	.1000

Furnace, Semi-Reinforcing (SRF) (bags)

Continex SRF	lb.	.0400 -	.0800
Croflex 20	lb.	.0400 -	.0800
Dixie 20	lb.	.0400 -	.0800
Essex	lb.	.0400 -	.0800
Furnex	lb.	.0400 -	.0800
Gastex	lb.	.0450 -	.0850
Kosmos 20	lb.	.0400 -	.0800
Pelletex	lb.	.0400 -	.0800
Sterling NS	lb.	.0400 -	.0800
Sterling R	lb.	.0450 -	.0850
Sterling S	lb.	.0400 -	.0800

Furnace, Fine (FF) (bags)

Statex B	lb.	.0650 -	.1050
Sterling 99	lb.	.0650 -	.1050

Furnace, High Abrasion (HAF) (bags)

Aromex	lb.	.0790 -	.1250
115	lb.	.0890 -	.1290
Continex HAF	lb.	.0790 -	.1250
Croflex 60	lb.	.0790 -	.1175
Dixie 60	lb.	.0790 -	.1175
Kosmos 60	lb.	.0790 -	.1175
Philblack O	lb.	.0790 -	.1190
Statex R	lb.	.0790 -	.1250
Vulcan 3	lb.	.0790 -	.1220

Furnace, Super Abrasion (SAF) (bags)

Statex 125	lb.	.1250 -	.1700

Thermal, Fine (FT) bags)

P-33 (c.l.)	lb.	—— -	.0550

Thermal, Medium (MT) (bags)

Thermax (c.l.)	lb.	—— -	.0350
Thermax, Stainless (c.l.)	lb.	—— -	.0450

REINFORCING AGENTS—SILICA

Hi-Sil	lb.	.11 -	.12½

REINFORCING AGENTS—MISCELLANEOUS

Darex Copolymer No. 3	lb.	.42 -	.44
X34	lb.	.37 -	.39
X43 (and 43E)	lb.	.38 -	.40
Darex Copolymer Latex No. 3 (and X34)	lb.	.36½ -	.50
Durez 12687 (and 12707)	lb	—— -	.37
Durez 13355	lb.	—— -	.29½
Good-Rite Resin 50	lb.	.42 -	.44
Kralac A	lb.	.43 -	.44
Marbon S and S-1	lb.	.42 -	.49
8000	lb.	.42 -	.49
Marmix	lb.	.42 -	.49
Pliolite Latex 190	lb.	.30 -	.34
Pliolite NR	lb.	.74 -	.76
Pliolite S3, S6, and S6B	lb.	.42 -	.44
C-3 Masterbatch	lb.	.57 -	.64
C-4 Masterbatch	lb.	.55 -	.62
G Masterbatch	lb.	.44 -	.51
G50 Masterbatch	lb.	.44 -	.51
N Masterbatch	lb.	.48 -	.55
R Masterbatch	lb.	.62 -	.69
WA	lb.	.68 -	.75
S113V76	lb.	.48 -	.55
Polyco 220	lb.	.22 -	.23

RETARDERS

Dutch Boy Normasal	lb.	—— -	.46
ESEN	lb.	.34 -	.36
Retarder ASA	lb.	—— -	.55
Retarder PD	lb.	.34 -	.36
Retarder T.C.M.	lb.	—— -	.65
Retarder W	lb.	—— -	.43
Retardex	lb.	.47 -	.50

RUBBER SUBSTITUTES

Mineral Rubber

3I	ton	38.00 -	40.00
Black Diamond	ton	38.00 -	40.00
Byerlyte	ton	47.00 -	54.00
Gilsonite, Selects (c.l.)	ton	37.00 -	38.00
Hard Hydrocarbon (dms.)	ton	46.50 -	48.50
Herron Flake	ton	—— -	45.00
Mineral Rubber, solid	ton	42.50 -	44.50
Pioneer	ton	35.00 -	46.00

Vulcanized Vegetable Oils (Factice)

Amberex	lb.	.29 -	.36
Brown	lb.	.1425 -	.2680
Dispersed	lb.	.26 -	.42
Neophax	lb.	.1570 -	.2680
White	lb.	.1440 -	.2850

Miscellaneous Rubber Substitutes

G.B. Asphaltenes	lb.	.06 -	.06½
Gilsonwax B	lb.	.09 -	.11
Resin No. 1098 (drums)	lb.	—— -	.62
No. 1198	lb.	.46¼ -	.49¾

SOLVENTS

Acetone (dlvd.)	lb.	.08¾ -	.11
American Dipentine	gal.	.44½ -	.68
American Pine Oil	gal.	.75½ -	.95¾
Amsco Lactol Spirits (t.c.)	gal.	—— -	.18
Rubber Solvent (t.c.)	gal.	—— -	.17
Solv A (t.c.)	gal.	—— -	.25½
Solv A-80 (t.c.)	gal.	—— -	.30½
Solv B (t.c.)	gal.	—— -	.29
Solv B-90 (t.c.)	gal.	—— -	.32
Solv D (t.c.)	gal.	—— -	.30¼
Special Naphthalite (t.c.)	gal.	—— -	.17
Textile Spirits (t.c.)	gal.	—— -	.18
Amyl Chlorides, Mixed (t.c.l.) (drums)	lb.	.10 -	.11
Benzol 90%	gal.	—— -	.48
Butyl Acetate (t.c.)	lb.	.15¼ -	.17¾
Butyl Alcohol (t.c.)	lb.	.13 -	.175
Secondary (dlvd.)	lb.	.11 -	.13½
Tertiary (dlvd.)	lb.	12 -	.14½
Carbon Bisulfide, Tech.	lb.	.0440 -	.0800
Carbon Tetrachloride	lb.	.08 -	.08½
Cosol 1	gal.	.37 -	.43
Cosol 2	gal.	.42 -	.48
Cyclohexane	lb.	.09¼ -	.11¾
Cyclohexanone	lb.	.25 -	.27 a
Diacetone, Pure (dlvd.)	lb.	.12 -	.14½
Dichlorethyl Ether (dms.)	lb.	.15 -	.17
Formal (dms.)	lb.	.29¾ -	.31¼
Dichloropentane (t.c.l.)	gal.	.04 -	.07
Dicom	gal.	.30 -	.42
Dipentene (dms.)	gal.	—— -	.60
Halowax Oil	lb.	.28 -	.41
Heptanes (t.c.)	gal.	.17 -	.22
Hexalin Cyclohexanol	lb.	.20 -	.22 a
Hexanes (t.c.)	gal.	.17 -	.22
Isopropyl Alcohol, Ref. 99% (dlvd.)	gal.	.43 -	.60
Ether, Ref. (dlvd.)	gal.	.05 -	.07½
Mesityl Oxide (dlvd.)	lb.	.11½ -	.14
Methyl Acetone, Syn. (dms., dlvd.)	gal.	.54½ -	.72¼
Methyl Ethyl Ketone	lb.	.11 -	.13½
Methyl Isobutyl Ketone (dlvd.)	lb.	.13 -	.15½
N-5 Pentane Mix. (t.c.)	gal.	—— -	.13½
N-6 Hexanes (t.c.)	gal.	—— -	.14½
N-7 Hexanes (t.c.)	gal.	—— -	.13½
Penetrell	gal.	.44½ -	.68
Petrolene (t.c.)	gal.	—— -	.13125
Picolines, Alpha, Refined	lb.	—— -	.40
Mixed	lb.	—— -	.30
Proprietary Alcohol (t.c.)	gal.	—— -	.43½
Pyridine, Refined	lb.	—— -	1.05
Quinoline	lb.	—— -	.61¼
Rubber Solvent (t.c.)	gal.	—— -	.16
Rubsol (t.c.)	gal.	—— -	.11875
Skellysolve B (Hexanes) (t.c.)	gal.	—— -	.148
C (Heptanes) (t.c.)	gal.	—— -	.141
E (Octanes) (t.c.)	gal.	—— -	.155
R (Solvent Naphtha)	gal.	—— -	.114
Solvenol (dms.)	gal.	—— -	.36
Solvent, Crude, Light	gal.	.19 -	.28
Solvesso 100 (t.c.)	gal.	—— -	.28
150 (t.c.)	gal.	—— -	.28
Sunny South Dipentine	gal.	.44½ -	.68
Sunny South Pine Oil	gal.	.75½ -	.95¾
Sunray	gal.	.1140 -	.1600
Toluene (drums)	gal.	—— -	.28
Toluol (t.c.)	gal.	—— -	.45
Trichlorethane	lb.	.11½ -	.13½
Triglycol Dichloride (dms.)	lb.	.59½ -	.60½
Union Thinner 1	gal.	—— -	.163
3	gal.	—— -	.165
5	gal.	—— -	.45
7	gal.	—— -	.153
2-50-W Hi-Flash	gal.	—— -	.41
X-7 Sp. Heptanes (t.c.)	gal.	—— -	.11
Xylol	gal.	—— -	.45

STABILIZING AGENTS (for Vinyl Resins)

Basic Silicate White Lead	lb.	.1535 -	.1635
No. 201	lb.	.19¼ -	.20¾
Bunatak Polymer No. 780	lb.	—— -	.04
No. 5514	lb.	—— -	.35
BVS	lb.	—— -	.58¾
Cadmium Stearate	lb.	—— -	1.25
Dutch Boy DS-207	lb.	—— -	.56
Plumb-O-Sil A	lb.	—— -	.31¼
B	lb.	—— -	.32¾
Tribase	lb.	—— -	.29¾
Dythal	lb.	—— -	.42½
Lead Stearate, Precip.	lb.	.36 -	.38
Fused	lb.	—— -	.35½
Lithium Stearate	lb.	.63 -	.65
Stabelan E	lb.	1.25 -	1.40
XL	lb.	.55 -	.65
Stabilizer No. 3	lb.	—— -	2.15
Stabilizer No. 21	lb.	—— -	1.08
Stabilizer No. 52	lb.	—— -	2.15
Stabilizer No. 89	lb.	—— -	.75
Stabilizer No. 143	lb.	—— -	.85
Stabilizer BC-12	lb.	—— -	.90
Stabilizer BS	lb.	—— -	.70
Stabilizer CH-14	lb.	—— -	.65
Stabilizer E6B	lb.	—— -	.95
Stabilizer JCX	lb.	—— -	.68
Stabilizer L	lb.	—— -	.60
Stabilizer OM-10	lb.	—— -	2.15
Stabilizer OM-18	lb.	—— -	3.65
Stabilizer SN	lb.	—— -	.48
Stabilizer V-1-N	lb.	—— -	.45
Stabilizer V-9	lb.	—— -	.85
Stabilizer VL-2	lb.	—— -	1.27
Stabilizer VL-3	lb.	—— -	1.18

STABILIZING AGENTS (Cont'd)

Stabilizer V-7939	lb.	—— -	.60
Vanstay L	lb.	.33 -	.35
H	lb.	.75 -	.77
HH	lb.	.98 -	1.00

SUN CHECKING AGENTS

Antisol	lb.	—— -	.23
Antisun	lb.	—— -	.21
Heliozone	lb.	.25 -	.26
NBC	lb.	—— -	1.30
Sharples Wax	lb.	.23 -	.28
Sunolite	lb.	.20 -	.23
Sunproof	lb.	.25 -	.26
Imp.	lb.	.23 -	.24
Jr.	lb.	.18 -	.19
Tonox	lb.	.50 -	.52

TACKIFIERS

Arcco 620-32B	lb.	.20 -	.21
716-30	lb.	.19½ -	.20½
1041-21	lb.	.17½ -	.18½
Galex (drums)	lb.	.15½ -	.19¼
Indopol H-300	gal.	1.00 -	1.16
Koresin	lb.	.73 -	.75
Liquid Rubber Flux	lb.	—— -	.14
Nilox (c.l.)	cwt.	—— -	15.00
Pentalyn A (dlvd.)	lb.	.16 -	.16½
Resin V	lb.	—— -	.23¼
Rubtack	lb.	—— -	.12
Staybelite Ester No. 10 (dlvd.)	lb.	.24 -	.24½
Synthol	lb.	—— -	.24¾
Vistac No. 1	gal.	1.00 -	1.16
A	lb.	.21½ -	.22¼
Zirex (c.l.)	cwt.	—— -	15.00

THICKENERS (FOR LATEX)

Alcogum AN-6	lb.	—— -	.05
AN-10	lb.	—— -	.08¼
Betanol (druma)	lb.	—— -	.70
Emulsorex No. 5	lb.	—— -	.35
Lecithin	lb.	.12 -	.17
Modicol VD	lb.	—— -	.12½
VE	lb.	—— -	.10¾
VF	lb.	—— -	.10¾
VK	lb.	—— -	.07
Polyco 296	lb.	.15 -	.16
296-N	lb.	.15 -	.16
Propylene Laurate (dms.)	lb.	.57 -	.67
Sodium Silicate	cwt.	1.50 -	2.65

VULCANIZING AGENTS

Selenium

Ancasal*	lb.	—— -	2.00
Vandex	lb.	—— -	3.50

Sulfur

Blackbird	cwt.	—— -	2.30
Crystex	lb.	.19½ -	.23
Darex Dispersed Sulphur	lb.	.12 -	.17
Devil (c.l.)	cwt.	—— -	1.75
Dispersed Sulfur	lb.	.12½ -	.14½
Insoluble Sulfur 60	lb.	.12½ -	.13
Spider	cwt.	—— -	2.30
Star (c.l.)	cwt.	—— -	2.25
Tire (c.l.)	cwt.	—— -	1.75
Tube	cwt.	—— -	2.25

Tellurium

Ancatel*	lb.	—— -	2.00
Telloy	lb.	—— -	2.50

WETTING AGENTS

Advawet No. 10	lb.	—— -	.20
No. 15	lb.	—— -	.21½
No. 33	lb.	—— -	.48
Aerosol OT 70% Clear	lb.	.80 -	1.00
Alrosol (dms.)	lb.	—— -	.40
Alrosperse	lb.	—— -	.18
Aquarex D	lb.	—— -	.80
MDL Paste	lb.	—— -	.33
ME	lb.	—— -	.97
NS	lb.	—— -	.60
WA Paste	lb.	—— -	.28
Areskap 50	lb.	.30 -	.38
Dry 100	lb.	.60 -	.72
Aresket 240	lb.	.30 -	.38
Dry 300	lb.	.60 -	.72
Aresklene 375	lb.	.42 -	.57
Dry 400	lb.	.70 -	.84
Armacs	lb.	.29 -	.76
Arquads	lb.	.21 -	.61
Etho-chemicals	lb.	.34 -	.80
Kessco E-122 (dms.)	lb.	—— -	.49
Lecithin	lb.	.18 -	.26
Modicol L	lb.	—— -	.58
N	lb.	—— -	.40
S	lb.	—— -	.32
Nekal NS	lb.	—— -	.28
Nopco 1086-A	lb.	.42 -	.50
1187-X	lb.	—— -	.14½
Parnol	lb.	.13 -	.18
Santomerse D	lb.	.44 -	.65
S	lb.	.13 -	.25
Sorapon SB	lb.	.14 -	.15
SF Conc.	lb.	.29 -	.30
Sorbit P	lb.	—— -	.25
Stablex G	lb.	.50 -	.70
Tergitol 4 (dms., dlvd.)	lb.	.30 -	.31
7 (dms., dlvd.)	lb.	.42 -	.43
08 (dms., dlvd.)	lb.	.30 -	.31
P28 (dms., dlvd.)	lb.	.18½ -	.19
Trenamine W-30	lb.	—— -	.15
Vultamol	lb.	—— -	.17½
Wetsit Conc.	lb.	.25 -	.32

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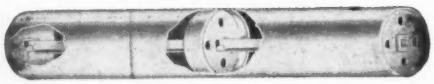

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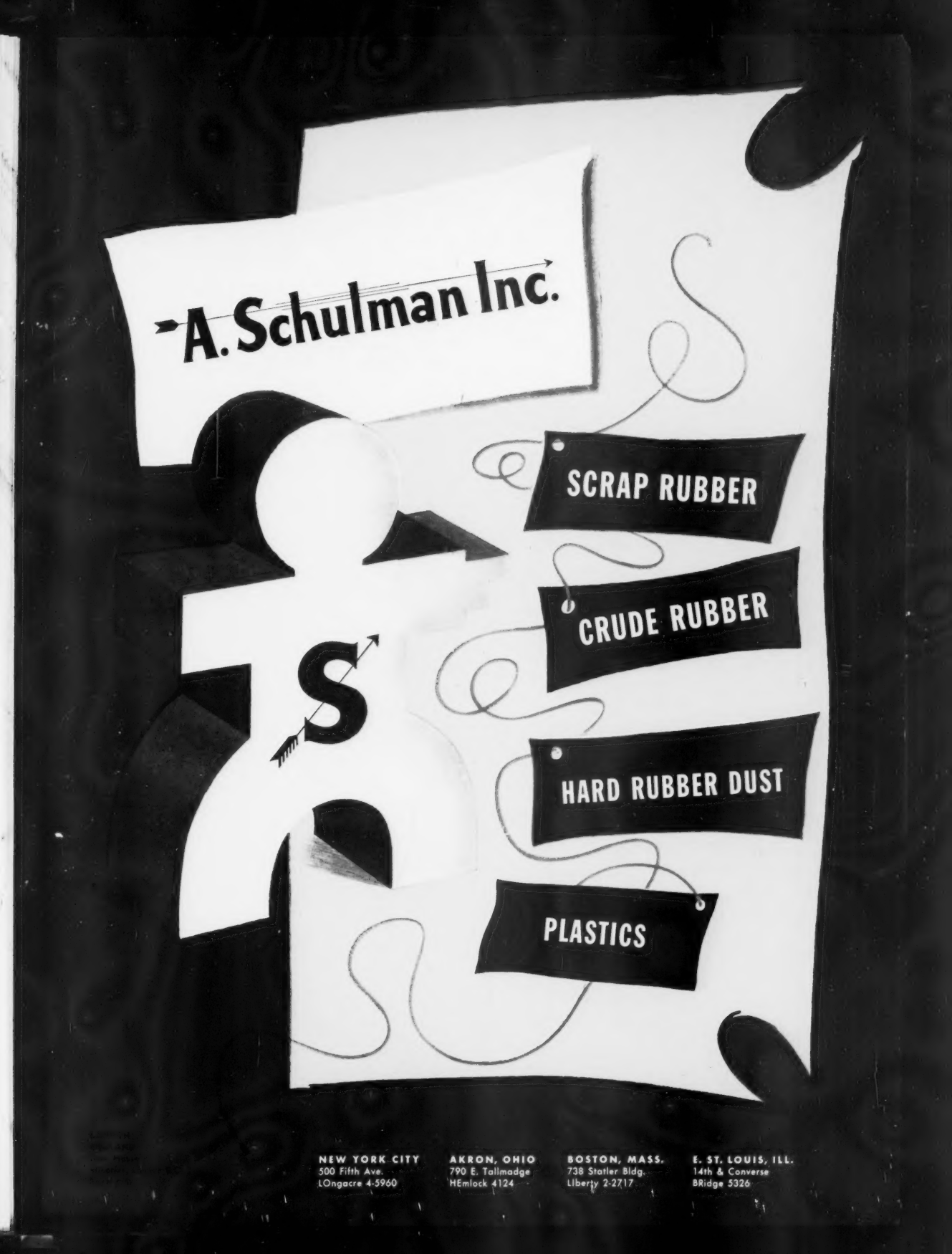
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* STANTONE LPC
Pulp... For Latex.
* STANTONE GPE
Ground dispersion in Polyethylene and other resins.
* STANTONE MBS–MASTERBATCH
Emulsion dispersed in plastic, precipitated and standardized in color intensity for precision color matching, cleaner compounding.
* STANTONE RUBBER INKS
For Rubber and Plastic Printing.
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AKRON, OHIO
BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

36th Year JULY, 1952

RUBBER AGE

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FOR

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